

AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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CONTENTS :

Go to Saratoga; Railroad between Hartford and New-Haven; New-York and Erie Railroad Comp'y.	page 337
Method of conducting the New-York Canal Surveys.	338
The Undulating Railway.	339
Time and Space—Projected Railroad.	340
Meteorological Record; Hemp Machine; Formation of Siliceous Glass; &c.	341
Milne's Mercurial Dynamometer, and Railway Lock for raising Carriages, &c. (with engravings).	342
Babbage on the Economy of Manufactures (continued).	343
Reeling Silk.	345
Literary Notices.	346
Foreign Intelligence.	348
Summary.	349
Poetry; Marriages and Deaths; Advertisements.	352

AMERICAN RAILROAD JOURNAL, &c.

NEW-YORK, JUNE 1, 1833.

GO TO SARATOGA—say we to our friends; say, say we to *all* who wish to improve feeble or preserve good health. Go to Saratoga indeed! Who would not? Certainly not a solitary individual, who can go—for, in no other excursion of equal distance can any thing like equal pleasure, or comfort, or benefit, be enjoyed by the invalid, or those in good health, at so little expense and fatigue as in a trip to SARATOGA.

To our worthy citizens who have little business to attend to, or have just closed, or nearly so, an arduous and we trust a profitable, spring business, after a winter's confinement within the brick walls of Gotham, we need not repeat the short saying at the head of this article, as they will undoubtedly avail themselves of the earliest opportunity for participating in the pleasures of such an inviting and invigorating excursion. They would do so, indeed, even if it were only to put again in circulation a part of their surplus income, or of the rich harvest so recently gathered by their enterprise; but to thousands of others equally industrious, and equally enterprising, although upon a more limited scale, who think they cannot afford it, we would again say *go to Saratoga*, and you may rely upon it that you will never forget the pleasure, nor regret the expense; and as for the time, you will scarcely miss it from your business. If time is an object to you, adopt the following plan: Rise early each morning and be industrious through the week until Friday at 3 P. M.; then get ready for the 5 o'clock boat, (and you need not apprehend any danger, as formerly, from that useless practice of steam-boat racing, for it is abolished under the present

admirable arrangement,) which will land you in Albany next morning, in time for the first or half past six o'clock train of cars to Schenectady, where, at DAVIS's, you may take your coffee and toast, or whatever else you may prefer, previous to taking a seat in those very convenient Cars on the Saratoga Road, which is now completed and connected with the Mohawk and Hudson Railroad. From Schenectady to Saratoga, through Ballston, the distance is 22 miles, which is performed by horse power in two hours with great ease. By this arrangement, 17 hours only are required from the time you leave New-York to perform the journey to the Springs. Once there, it is hardly necessary for us to designate a house at which good fare may be found, as there are undoubtedly several excellent houses. We cannot, however, omit to say, that better beef-steak, coffee, and butter, cannot be found, and a greater variety need not be wished for, than was spread before us at UNION HALL, kept by Mr. W. Putnam, on Monday morning, 27th ult. The eggs, it is true, the ladies said were too much boiled, but this was a small matter, especially as there were eggs cooked in various modes. In short, the breakfast was excellent, the waiters attentive, the house in good order, and every thing indicated a determination to satisfy those who may make it their quarters during their stay. The other principal houses, as Congress Hall and the United States Hotel, are not yet open for company, although in a state of forwardness. The village presents an appearance exceedingly inviting, to one who has been long confined to the brick walls and dust of a city.

Having performed the journey out in 17 hours, the same time only is necessary to return, as follows: Having remained there until Monday, leave Saratoga at 12 M., Albany at 5 P. M., and reach home next morning at or before 6 o'clock,—having been absent 85 hours, travelled 366 miles, spent 34 hours on the way, and 51 at the Springs. The excursion may, however, very soon be made in much less time by those who wish only to take a half dozen glasses of Congress water, and return immediately. They may leave New-York by the evening boat of Monday—dine at Saratoga on Tuesday at one o'clock—return to Albany in time for the five o'clock boat—and be at home at six o'clock on Wednesday morning,—thus performing in thirty-seven hours what would have required, a few years ago, at least ten or twelve days.—Wonderful, indeed, are the improvements that have been made in the conveniences for travelling, within a few years. Great, however, as they are, greater will undoubtedly be made in

the course of the following, than have been during the past twenty years. Within that time, Railroads will be constructed where they are now scarcely dreamed of; and with improvements upon the present plans, equal at least to those which have been made in Steamboats in the same length of time. We would therefore again say, *Go to Saratoga*—if it is only to have a ride upon the Railroad,—that you may be able not only to appreciate their value, but also to say that you have contributed to the prosperity of those who have done so much for the public.

NEW-YORK AND ERIE RAILROAD COMPANY.

—We learn with much satisfaction that preparations are making for opening books of subscription to the capital stock of this Company, in conformity with the charter as recently amended; and we cannot but feel confident that when the requisite information respecting the route of the proposed railway, and its incalculable importance to this city, is spread before the public, a high interest will be felt in the object by our citizens, and an effort worthy of this metropolis and of the undertaking will be promptly made. Nothing, we feel assured, is wanting but a spirited commencement of this work, to render certain its speedy and complete accomplishment. We are of opinion that this thoroughfare, connecting our commercial capital with the Lakes and Western States by the shortest and most feasible of all possible routes, will prove not less beneficial to the trade and growth of this city than the Erie canal has been. Its effects on the business of the city with the Western States cannot fail to be of immense value. To the southern counties of this state, which at present are almost shut out from markets, the prospect of this work being commenced will no doubt be hailed with the liveliest satisfaction. Every proprietor of the soil on its route should obtain stock when the books are opened.

We are gratified to learn that a bill authorizing the construction of a Railroad between the cities of Hartford and New-Haven has passed both houses of the Connecticut Legislature. The feasibility of the route, and the large amount of business which now pertains to it, will, we are confident, insure its early completion. Much advantage will accrue to the large manufacturing interest, as well as to the general productive industry of the rich and populous valley of the Connecticut river, from this enterprise, and from the unobstructed intercourse which it will afford with our great commercial mart during the winter months.

Method of conducting the Canal Surveys in the State of New-York. By E. F. JOHNSON, Civil Engineer. [From the American Journal of Science and Arts, No. 1. Vol. XXIV.]

At the time when the two great Canals of the State of New-York were constructed, the outlines or boundaries of the ground which they occupied were not established by any accurate or systematic surveys, and hence no means were offered for ascertaining the precise extent of ground intended to be appropriated by the state for their use.

At the period of their completion, the damages to the different proprietors whose lands were intersected and injured by them were assessed by commissioners duly appointed and authorized for the purpose. These commissioners in making their estimates directed measurements to be made, in very many instances, for determining as nearly as practicable, without too much delay and expense, the average length and breadth of the several portions of ground taken from the different proprietors through whose lands the canals passed.

From these measurements the approximate quantity of ground contained in each portion was deduced, which, compared with its value per acre, enabled the commissioners to determine with greater certainty than could otherwise have been attained, the actual damage to individuals occasioned as above stated.

Although the measurements thus made may have answered sufficiently well perhaps for the purpose for which they were instituted, yet the want of more perfect and systematic surveys in accurately defining the outlines of the canals was soon felt. The proprietors of the adjoining grounds, being ignorant of the precise extent of the claims of the State, could only refer, in their instruments of conveyance, in a general manner, to the canal as a boundary, and were equally at loss in the erection of buildings in those cases where as near an approach to the canals as possible was desirable without infringing upon the rights of the State.

The inconvenience resulting from this state of things was not confined altogether to individuals. The rapid increase in the value of lands bordering the canals, which followed their completion, and the numerous encroachments which were in consequence made upon the ground required for their efficient and successful operation, rendering it necessary for the State to devise some means of preventing any future inconvenience from the same source. This it was apparent could be done only through the medium of surveys properly executed, the maps, field books, &c. of which should be deposited in some place convenient for reference.

The result of the legislative action upon the subject is to be found in Part I. Chap. IX, Title IX. of the Revised Statutes of the State of New-York, in nearly the following words:

A complete manuscript map and field notes of every canal that now is or hereafter shall be completed, and of all the lands belonging to the State adjacent thereto or connected therewith, shall be made, on which the boundaries of each parcel of such lands to which the State shall have a separate title shall be designated, and the names of the former owners and the date of each title be entered. The expense to be defrayed out of the canal fund. The surveys to be executed under the direction of the Canal Commissioners, and approved by the Canal Board, and when completed to be filed in the office of the comptroller. Copies of the maps and field notes so filed are to be made under the direction of the Canal Board, and transmitted by the comptroller to every county intersected by the canals to which the maps shall relate, and filed in the Clerk's office of such county.

The portion of the revised statutes from which the preceding is taken received the legislative sanction in 1827, and in 1828 and '9 the attention of the Canal Commissioners was directed to the subject, with the view of making the necessary arrangements for the execution of the surveys.

The canals which were at this time completed and considered as the property of the State, were the Erie, Champlain, Seneca and Cayuga, and Oswego, which, including the Chemung and Crooked Lake Canals, upon which operations had already been commenced, constituted an extent of nearly six hundred miles.

In accomplishing the survey of these works the importance was at once seen of a rigid adherence to the same uniform system throughout; and it was likewise obvious that the greatest caution and judgment should be exercised in selecting from the different modes which might be devised, the one which should afford the means of determining at any future day, with the greatest practicable degree of precision, the outlines of the land set apart by the state for the use of the canals.

In the investigation of the subject, it became apparent that one of two modes, differing materially from each other in their general principles, must be adopted.

The first method contemplated the measurement in the usual manner, with the circumference and chain, of the outlines of the ground occupied by the canals, with such references to permanent objects and cross measurements as were necessary for verifying the accuracy of the survey.

In the other method the location of the outlines or boundaries was to be determined by offsets, made in a specified manner, from a base line situated upon and coinciding with the inner edge of the towing path, the best defined, and (as an object for general reference) the most permanent part of the canal. References were likewise to be made as contemplated in the preceding method to all accessible objects of a permanent character for verifying the accuracy of the survey.

This latter method being the one which received the sanction of the Commissioners and Canal Board, its details will be more fully described as follows:

1. The measurements in the direction of the length of the canal were made upon the base line above mentioned, situated upon or coincident with the inner edge of the towing-path. The height of the surface of the towing-path, and the inclination of its inner slope, being supposed the same as specified in the transverse profile adopted in the construction of the canals.

2. The several changes in the direction of the base line were referred to the magnetic meridian: the whole line being thus resolved into as many separate alignments, as it contained portions having different courses or bearings.

3. The several alignments were accurately measured in chains and tenths, (fractions other than tenths being avoided by a very little care in arranging the stations); and the distances upon each to the several points where the lines of roads, counties, towns, patents, lots, &c. intersected the same, together with their courses or bearings, were carefully observed.

4. The distance likewise to all waste-weirs and culverts, and to all streams that discharge themselves into or otherwise intersected the canals were taken, and the same was done with respect to the road and farm bridges, locks, aqueducts, &c. The distances to the bridges were taken to the lines joining the two nearest angles or corner posts of their abutments—those to the locks to the lines passing through the centres of the two nearest quoin posts, and those to the aqueducts to the faces of their abutments.

5. Offsets for determining the breadth of ground occupied by the canal were made from the base line at each angle or station, and likewise at every other point where a variation in the breadth of the canals required. The directions of the offsets were such as to bisect the angles formed by the two portions of the base line situated contiguous to them on each side, or in other words, the directions of the offsets at the several stations were such as to bisect the angles formed by the alignments, on the

towing-path, the intermediate offsets being described perpendicular to; and the distances upon both reckoned from, the same alignments in links.

6. The offsets on one side, across the towing path, were made to extend at least twenty links (that being the minimum fixed by the Commissioners), and in every case to reach to the base of the outer slope of the embankment. The offsets in the opposite direction, across the canal, were made to extend at least fifteen links from the margin of the water, that being the minimum allowance for the breadth of the berm, and in every case to reach to the base of the exterior slope of the embankment, if any, upon that side.

7. Wherever an enlargement in the breadth of the canal rendered the method of offsets inconvenient or impracticable, the portion included in said enlargement was surveyed in the usual manner by measuring the courses and distances of the several lines that enclosed it on the side opposite to the towing path.

8. The survey embraced within its limits all grounds pertaining to the canal, including all tracts or lots of land set apart or appropriated for the purposes of lock-houses, weigh-locks, collectors' offices, &c. with the names of the former owners and the date of each separate title inserted as far as the same could be ascertained.

9. The results of the measurements made as above described were inserted in a field book. Each page of the book was ruled into parallel lines one fourth of an inch distant from each other. Near the centre of each page, and at right angles with those lines, a red line was drawn, extending across all the pages of the book.

10. The red line thus drawn represented the base line of the survey. The portion of this line corresponding to any given alignment, was made to embrace in its length as many of the spaces included by the parallel lines as there were chains in the alignments, or, if the smallness and number of the objects to be noted rendered it necessary to enlarge the scale, double the said number of spaces were taken for the purpose mentioned.

11. The offsets for the breadth of the survey were in every case represented upon the large or double scale, that is, two spaces or one half of an inch was assumed as equal to one chain. The offsets at the several stations or angles in the base line were represented by continued red lines. The intervening offsets were indicated by the red dotted lines.

12. The distances between the several stations, or the lengths of each separate alignment, were inserted at the ends of the same, within the space occupied by the canal. The same was likewise done with respect to the intervening offsets and all other measurements upon the base line, the distances being in each case reckoned from the last preceding station. The lengths of the offsets were inserted on the right and left of the canal, according as they were made on the one side or upon the other.

13. In the field-book thus arranged, all lines appertaining to the survey were described as near as possible in their true positions; likewise all such objects of interest of every description, including roads, streams, buildings, changes in the inclination of the ground, geological characteristics, localities of minerals, &c. &c. as came within the limits of the field-book, were carefully sketched. The sketches being executed with greater accuracy through the aid of the parallel lines as above described.

14. The results of the measurements for the several bearings and distances were distinctly put down upon the lines to which they respectively belonged, and the whole accompanied by such remarks as were necessary completely to elucidate every thing of importance relating to the survey.*

* It is perhaps proper to remark that occasional observations for determining the variation of the magnetic needle were contemplated, but from the want of the necessary instruments were omitted. The importance of such ob-

The maps were formed on separate sheets of super-royal paper, bound in the Atlas style, each volume containing fifty sheets, and comprehending about thirty or thirty-five miles of canal. They were projected upon the same uniform scale of two chains to the inch, and the border lines, on each separate sheet, were so drawn relatively, as to coincide in direction with the magnetic cardinal points of the horizon. The shading and lettering were executed in a superior manner, and the whole exhibited a style and perfection of finish corresponding with the importance of the survey.

Of the two modes of survey, whose merits were canvassed by the Commissioners, the one above described was the one to which, as already stated, the preference was awarded.

In this method the principal measures in the direction of the length of the canals were made upon the base line, situated upon the level and even surface of the towing-path, under circumstances, it will be conceded, in the highest degree favorable for accuracy; while in the other mode, the measures would have been subject to all the errors arising from inequalities of ground, and the various obstacles to be met with upon the outlines, such as trees, fences, streams of water, ravines, swamps, rocks, &c. which occur more or less frequently upon all portions of the canals; add to this the absolute impracticability of making such a survey in the many places where the canal is bounded on both sides by impassable swamps, as is the case at the Cayuga marshes, or is separated, as it frequently is, from an adjoining river, by a high terrace wall or embankment, or is bounded upon the berm side by a steep and thickly wooded side-hill, or by lofty and precipitous rocks, similar to what is seen at the Little Falls, at Flint Hill, at the Big Nose, or at the Cohoes upon the Mohawk, and at various other places.

In the method as pursued, the base or governing line is located upon the inner edge of the towing path, the best defined, and, for the purpose of general reference, unquestionably the most permanent part of the canal. The importance of maintaining a hard and even surface for the horse track renders it necessary to construct it of materials of a solid and durable character. Its inner edge likewise is usually protected by a slope wall of stone or docking of timber, to resist the action of the water, the abrasive effects of which, if they occur at all, are confined to short distances and to particular places; and under circumstances which render it an easy matter to determine the precise extent of the encroachment. Upon the New-York canals, and indeed upon most other works of the kind in the country, there are distances of miles together where substantial buildings or bridges or objects of an equally permanent character cannot be found, in consequence of which, and from the little reliance to be placed upon the directive property of the magnetic needle, in tracing long and irregular lines, in cases where an error of even one or two feet in the distance of a mile would be attended with serious inconvenience, and considering moreover the imperfection and disagreement of different instruments, and the want of the requisite skill not uncommon with many surveyors, a constant reference to some part of the canal, as a standard for preserving the location of the outlines, becomes absolutely essential.

In selecting the part of the canal for this purpose, the choice, it will be obvious, would necessarily fall either upon the inner edges of the berm or towing-path, or upon one or both margins of the water. Of these the towing-path was considered as entitled to the preference, since the berm side is not only constructed of less durable materials, more liable to abrasion and seldom kept in proper repair, but

observations was however duly considered, and the precaution was frequently taken to note with precision the magnetic bearings of distant and permanent objects, so that, should variable observations be hereafter instituted, the exact variation of the magnetic meridian as it existed at the time of making the survey can be easily ascertained.

for much of the distance where the canal runs along sidelong ground no regular or artificial berm is formed, the water being allowed to flow back and conform to the natural irregularities of the surface. In some places, likewise, the berm is subject to alteration from the gradual sliding or giving of the earth, producing a contraction of the channel, while the embankment on the side of the towing-path remains comparatively firm and undisturbed. Similar objects will likewise apply to either margin of the water, particularly on the berm side, while on both sides the marginal line is subject to constant variation from the fluctuations of droughts and floods, and the irregular demand for the supply of inferior levels and for the purposes of lockage.

From the preceding it will appear, that even in the mode of surveying the outlines, as rejected by the commissioners, a general reliance must necessarily have been placed, as in the other method, upon offsets to the inner edge of the towing-path, with this difference, that as no survey is made along the inner edge of the towing-path, any changes or variations in it cannot be so easily detected and rectified. These offsets, likewise, owing to the great difference in level of the surface of the towing-path, and the ground on which the outlines are situated, particularly in places where there are high embankments or deep excavations, would be subject to very great inaccuracy, which, combined with the difficulty of reducing them to any regular system, would occasion many irreconcilable discrepancies between the measures upon the offsets and those upon the outlines, and render the precise location of the boundaries a matter of corresponding uncertainty. In the mode as pursued, the accuracy or inaccuracy of the offsets does not in the least affect the location of the base line, and by means of the measures upon it, and the uniform mode of describing the offsets, the bearings and distances of the outlines can be calculated, if required, with much greater precision than they could possibly be measured, and when so calculated, the different parts of the survey will have the additional merit of a perfect agreement with each other, a desideratum which in the other method must be pronounced to be practically unattainable.

Another consideration of much importance in favor of this mode is found in the facilities afforded for recording the field notes, and representing the whole by means of sketches and diagrams in such a manner as to avoid all liability to mistake or confusion, and presenting at the same time a very tolerable map of the survey. The check likewise which the mode of sketching exercises over the measures with the chain—the one keeping pace in all cases with the other, and both under the immediate and constant supervision of the surveyor, (each chain distance on the base line being represented by its corresponding space in the field-book,) combined with the practice of requiring a separate account from each of the chainmen, rendered an error in the reckoning almost impossible.

In the other mode the frequent obstructions to be encountered upon the outlines, and the constant necessity of deviating by offsets from a direct course, would add very much to the liabilities to error, and although the measures upon the two outlines, if the cross measures were repeated often enough, would serve to detect any errors or omissions of integer chains upon each, yet no evidence would be afforded upon which of the lines it occurred, and an attempt to correct without an actual re-survey would be as likely to increase as to remedy the evil; add to this, the discrepancy that would unavoidably result from the circumstance of the two outlines being surveyed at perhaps different times by different surveyors, with different instruments and different assistants, and the great inconveniences of referring at any future time, for the results of the measures of a given portion of the canal, to different field-books or to different parts of the same field-

book, a necessity which from the nature of the case could not be avoided.

The disadvantage of this mode is likewise evident in another respect. The law of the Legislature authorizing the survey requires that the maps and field-books, with all that they contain, shall be sanctioned and certified by the Commissioners, and for this purpose, before the survey can be said to be completed, the whole ground must be examined by the Commissioners in company with the surveyor, and in the many instances where the opinion of the former would probably differ from the latter, as to the precise extent of ground proper to be embraced in the survey, alterations in the measures and the field-books must necessarily be made. These cannot be effected without completely deranging the previous surveys, and requiring an entire re-survey of the objectionable portions, while, in the method as adopted, the necessary alterations are speedily and easily effected by simply enlarging or diminishing the offsets to the extent required. In tracing the outlines, moreover, by the former mode, the surveyor, from a natural desire to expedite his work, by reducing the number of separate courses or bearings, might perhaps extend his lines to an undue length, the consequence of which would be that the outlines would, in many places, approach nearer to, and in others recede farther from, the canal, than would be proper, and too much or too little ground would be embraced within the survey. This would be particularly the case, upon the concave and convex sides of those portions of the canal which were the most curved. In the method as pursued, this difficulty is entirely avoided. The variations in the breadth of the ground embraced in the survey are gradual, conforming as nearly as possible to the natural changes in the surface of the ground and the requisitions of the canal. It moreover completely secures to the State the possession of the specified breadth of ground appropriated to the canal, and in this respect it accords in its practical operation with the established principle that the interest of the public should take precedence of that of individuals, in all cases where the means necessary for the perfect protection of the former are so limited that the extreme of abuse or encroachment which can possibly result will not expose the rights of the latter to material or important injury.

There is still another consideration of great importance in favor of this method which does not exist in the other. In all ordinary cases the location of the boundaries may be determined without the aid of the circumferentor, by means of the chain only. The greatest error which can thereby result in the position of either boundary will not exceed ten or twelve inches, supposing the offsets to be made twelve degrees out of their proper direction, and in the majority of cases will not probably exceed one third or one fourth of that amount.

The expense likewise of this mode is at least forty per cent. less than by the other, and when it is considered that the object to be attained is effected in a much more perfect and scientific manner, it must be conceded that it possesses a decided superiority.

The mode of survey above described is alike applicable to railways as to canals, and the description of it is thus publicly made, that those who are engaged in the construction of works of inter-communication may avail themselves of the advantages which it possesses over the less perfect methods ordinarily pursued in such cases.

Middletown, Conn. Nov. 1832.

The Undulating Railway. By JUNIUS REDIVIVUS. [From the London Mechanics' Magazine.]

SIR,—I have been casually informed that there is exhibiting somewhere about town a model of an Undulating Railway, whereby the inventor undertakes to convince the public that the antique notion of level surfaces being the best adapted for wheel carriages, is entirely

wrong; and, of course, if his position be correct, the road-surveyors have wasted a "pretty considerable" quantity of money to make roads worse than they were before, by levelling the hills, which ought to be restored without delay. But the inventor of the undulating railway is by no means an originator. The Russian ice-hills on the Neva, for the amusement of the sleighers in the winter season, formed of boarded scaffolds, overlaid with blocks of ice, are much more ancient; and the *Montagnes Russes* of the *Champs Elysees*, which served as summer amusement to the youths and maidens of Paris, the King of Prussia inclusive, some fifteen years back, were railroads of something the same nature as that now proposed. But the proposer of the present undulating railway has stumbled upon a fallacy, which possibly may deceive himself, but which ought not to be suffered to deceive the "barren spectators" amongst the public, because all such fallacies serve to inflict mischief upon the really useful inventors, by getting them classed under the invidious name of "schemers," which ought properly to be confined to the plotters of absurdities alone.

There can be no doubt that a carriage placed on the top of a hill of sufficient inclination will descend with so much momentum as to drive it partly up a second hill of the same height and inclination. There can be no doubt, also, that a fly-wheel, put in motion, will continue to revolve for some time after the original moving power ceases to act on it; but it is a woeful error to suppose that either the fly-wheel or the carriage can generate additional power of their own. I once heard a story of an Irish schemer who had devised a plan for increasing the power of a ten-horse engine to that of a fifty, by means of an enormous fly-wheel. Finding a "flat," he was set to work; and when he had, after some difficulty, succeeded in casting his enormous wheel, he expended much money in fitting up an apparatus to turn and polish it all over, to prevent the loss of power by friction in the atmosphere with a rough surface! Much time being lost, the proprietor, who was at all the expense, became impatient, and then there was another delay to know how the wheel was to be stopped, with all its giant power. This having been arranged, both schemer and proprietor were much astonished to find that it would not go at all. The proposition to get additional power, or save power, by means of an undulating surface, savors much of a perpetual motion scheme. It is clear that what is called *momentum* in falling bodies can be nothing more than *gravitation*, whereby all bodies have a tendency to get as near as they can to the centre of the earth, and the heaviest have the most success. The momentum of the carriage in going down the hill is in proportion to the height which it is raised, and the diminishing of friction by the degree of inclination. In the Russian ice-hills, the first from which the sleigh starts is of a given height; the second diminishes; the third also; and so on till the level ice is attained. Were all the hills of the same height, the sleigh would descend the first, partly ascend the second, and then oscillate for a time between both, until it stopped. The reason that the sleigh moves at all, that it possesses the power of motion, is, that it is removed from a lower to a higher level, and the tendency of its gravitating power is to reach the lowest, as is the case with water, which has the advantage of being a more mobile substance. But what places the sleigh in the situation to use this power—or, rather, what confers the power upon it? The animal power, either of human hands or horses' shoulders, which has been communicated to it, and which, doubtless, if means were taken to ascertain it, would be found to be exactly equivalent to the power put forth in surmounting the hills, with the exception of the loss by friction, i. e. the animal power applied in the first instance would have served to draw the sleigh on level ground as great a distance, I mean over as many yards of surface, as it traversed on the hills. Therefore, in this case, there would be no gain of power, or of any thing but amusement.

The late Mr. Bentham was accustomed to say, in a jocular manner, that when he made a world it should be all down hill. Now, such a contrivance would be admirable for diminishing friction, if there were any arrangement whereby we might always be at the top. If the new invented railway were contrived so that it might be constantly down hill, or over diminishing hills, there is no doubt that much friction might be avoided; but by what process are we to get to the top to begin again? There is but one answer. By labor—got out of animals or steam. And what would be the increase of work up hill? What was gained one way would be lost the other. I say nothing of the mischief resulting both to cattle and engines by the irregular motion. But we will suppose the railway an average level, i. e. the undulations to be all alike: what possible advantages can it have over a straight and level surface? It has been shown that to get the momentum of the high level, the power must be, so to speak, "put into it," i. e. it must be applied beforehand, just as the steam of an engine is got "up" to start with effect, or as is said of a horse who has been off work a few days, "his go is bottled up." When the carriage on the undulating railway has reached as far up the second ascent as the momentum will drive it, how much power must be put on to carry it up the remainder of the ascent? Probably as much as it would have taken to perform the distance of two undulations on a level road. The *Montagnes Russes* of Paris were formed in a circle, and consisted of one descent and one ascent. The descent was steeper than the ascent, yet the impetus or momentum only served to carry the car one-third up the ascent, when it was hooked by an endless band, worked by horse-power, below, and drawn to the top. Now, the power applied by the horses in drawing that car to the top was probably equivalent to the power which would have been exerted in drawing the car the whole distance on level ground, difference of friction excepted. The fact is, that in all cases the same quantity of power must be consumed to drag a wheel carriage up to a given height. If the ascent be steep, a large amount of power is requisite for a short time. If the ascent be gradual, a small amount of power will be requisite for a longer time. The total will be equal. Increase of speed is loss of power, and *vice versa*; yet, strange to say, there are numerous unthinking people who believe that, by making a simple machine complicated, as in the case of this railroad, they actually multiply their power, as if an accelerated motion down hill were not balanced by an up hill to ascend in turn.

The process is somewhat similar to that of a man who, determining to erect a water-mill, were first to erect a windmill or steam engine to pump up the water to the height necessary for his water-wheel. There are, I believe, water-mills in some of the mining districts which are supplied from the pumps worked by engines, but then the power of the engines is not expended for the purpose of getting a stream of water, but for the purpose of getting rid of a stream of water. The power got out of the water afterwards was first put into it by the engines, and the saving that power by using it for the water-mill is analogous to the process of the soap-makers, who boil down their waste ley to recover the alkali it may contain; but they do not make waste ley for the purpose of getting the alkali out of it. The power of the water-mill is commonly but a very small proportion of that of the engines which supply it, because the descent of the fluid is much less than its ascent. Were it to fall on the wheel from a height equal to that from which it was pumped up, the power of the engine and the power of the water-wheel would be nearly equal, the friction of the pump being taken into account.

Whatever the proprietor of the undulating railway may think, "power" cannot be self-generated. A man who is in a valley cannot get up into a mountain without labor of some kind; and whether the ascent to the mountain

be a straight inclined plane, or a number of undulations, will matter very little; but what difference of labor there is will be in favor of the former. When the boy makes his marble bound on the stone pavement, there is no saving of labor to him, because it happens to bound three times with one exertion of his muscles. He is obliged to exert so much the more power. The proposition to gain power by making a carriage go up hill and down hill, instead of on a level, reminds me of a scheme I once saw of a self-moving carriage, which was to go on as soon as it was loaded; and the greater the load the faster it was to travel. The ingenious inventor had heard talk of a wheel within a wheel, and he literally put it in practice, small wheels being contrived to run on a rail within the periphery of large ones, both before and behind a four-wheeled vehicle, and so fixed, by means of guides, that the weight was pressing on the rim of the large wheels, at a considerable height above the ground, in the expectation of making them revolve. The inventor had entirely forgotten that while the large wheel was pressed down hill, the small one had to travel up hill, and consequently that it was "no go." Perfectly similar is the undulating railway. If the eight-wheeled vehicle could have moved at all, it might have been running even unto this day; and if up hill and down hill, *versus* level, were a clear gain, it might be improved on till animal and machine power might be dispensed with, and the railway locomotive power of every man might reside in his own fingers. We have not come to that yet. We may exert a great quantity of power in various ways, it is true, but no more power can come out of a thing than that we put into it. If we wind up a jack, or a clock, or a watch, the amount of power which we have rapidly given is slowly expended—that is the whole process; but a man would be laughed at who were to assert, that the power we had given to the machines increased in quantity while in their progression; and thus should the man be laughed at who asserts that the power of a horse or machine is multiplied by going up and down hill.

Since writing the above, I have caused inquiries to be made at the place of exhibition, and am informed that the inventor has gone to Birmingham (I think) for the purpose of setting his scheme going on an undulating railway of three miles in length, to try it on a large scale. So much capital lost to John Bull, and his heirs for ever, if the report be correct!

I remain, Sir, yours, &c.

JUNIUS REDIVIVUS.

March 19th, 1833.

[In consequence of a very elaborate paper which appeared two weeks ago on this undulating railway in the *Athenaeum*, [see *Railroad Journal*, vol. 2, page 243,] professing to place beyond all doubt, not only that a great advantage had been actually gained by it, but the "physical principle" on which it depends—we went to the place where it was said to be exhibited, in order that we might see the prodigy with our own eyes. We were informed, however, that the inventors had left town on the very hopeful mission alluded to at the close of the preceding communication—(how curious that, after all, a *flat*, a *flat* should be the thing!)—and so for the present were obliged to rest, content with the statements furnished by our contemporary. Some remarks on these statements we were on the point of committing to paper, when we received the very acute and sensible letter on the subject, which we now insert, from our friend, "Junius Redivivus," and which appears to us to make all further observation superfluous.—[ED. LONDON M. M.]

TIME AND SPACE.—A project is started, and we hope will be consummated, of making a railroad from Philadelphia to Baltimore, by the way of Oxford and Port Deposit. The distance will only be 118 miles—the transportation of commodities exceedingly large, and the line of travel, for passengers and the mail, not

more than 7 hours, at the rate of going now established on the Newcastle and Frenchtown railroad—without any transhipment of goods, or transfer of baggage—unless desired on the way. Such a road would make a vast change in the existing condition of things; and especially in the winter season, when passengers and the mails have to be dragged through the mud—hub-deep, in many places.

A large part of this contemplated road is really completed—45½ miles at the Philadelphia extremity; and the stock has been subscribed for a railroad from Baltimore to Port Deposit. The middle section, then, of between 30 and 40 miles, only, remains undetermined.

When this road shall be made, and that from Baltimore to Washington is completed, as it pretty soon will be—Philadelphia will be nine hours distant from the capital of the United States.

We see, also, that a project is going on to make a continuous railroad from Philadelphia to the west shore of the Hudson, opposite New-York, via Trenton, New-Brunswick, Rahway, Elizabethtown, and Newark. We much desire that this may soon be accomplished—and it appears that it will be. The stock must be among the most profitable in the United States. It is stated that 600 persons, even now, daily pass between New-York and Newark, over the toll bridges, besides those carried in steam-boats, and the transport of merchandize is equal to 82,445 tons a year! The stock of the turnpike road between these places is 800 dollars for two hundred paid—that of the bridges, 150 for \$100 paid. It seems that the unwise monopoly, which was thought to have been granted to the Camden and Amboy Railroad Company, by the Legislature of New-Jersey, will not hold—for the new company has purchased an old turnpike road, and cannot be prevented from laying rails on the sides of it! This is pleasant. We would encourage home competition; aye, and might be reconciled even to "free trade" with foreigners: but not so far as to admit English tapes and hobbins, while England forbids payment for them in bread and meat!

With these roads made, (and they must be made,) New-York will be fifteen hours distant from Washington.

The prophecy of Oliver Evans (made in the presence of the editor of the REGISTER, and in the house of his father), many years ago, is near its fulfilment. Oliver Evans said, that "the child was then born who would travel from Philadelphia to Boston in one day." Oliver allowed, then, 80 or 90 years, but it will be done in half the time. Already the journey between New-York and Boston is being made in 17 hours 41 minutes, and the time on the railroad to be made between Philadelphia and New-York (less than six hours) will perfect the prophecy; however, it seemed to partake of insanity when first proclaimed.—[Niles' Register.]

GEORGETOWN, D. C. May 24.—Our Canal and its advantages.—It is with real pleasure we announce that the Canal and locks, as far as the eye can reach from Georgetown towards Crommelin, is literally covered with boats as close as they can stow, filled with flour and other produce. Not less than 15,000 barrels passed through the locks into the Basin yesterday; more than 150 boats, it is said, were above the town coming down.

PRICES OF RAILROAD STOCKS.

New-York and Harlaem	asked 99	— offered 88
New-York and Albany	—	—
Cannoharie and Catskill	—	—
Mohawk and Hudson	142½	142½
Do. (Branch)	—	—
Ithaca and Owego	91½	91½
Saratoga and Schenectady	127½	127
Fort Edward and Saratoga	—	—
Boston and Worcester	—	—
Boston and Providence	114	114
N. York, Providence, and Boston	105	105
Paterson and Hudson	102	100
N. J. Railroad & Transp. Line	—	—
Morris Canal	102	100
Delaware and Hudson Canal	—	—

METEOROLOGICAL RECORD, KEPT IN THE CITY OF NEW-YORK,

For the Week ending Monday, May 27, 1833, inclusive.

[Communicated for the American Railroad Journal and Advocate of Internal Improvements.]

Date.	Hour.	Thermometer.	Barometer.	Winds.	Strength of Wind.	Clouds from what direction.	Weather and Remarks.
Tuesday, May 21	6 a. m.	56	29.77	ESE	moderate	SW	cloudy and foggy
	10	58	29.79	ESE	..	SW	cloudy, with rain at 11
	2 p. m.	60	29.74	ESE	..	SW	—
	6	66	29.72	ESE	..	SW	—
	10	63	29.76	ESE	..	SW	—
Wednesday, " 22	6 a. m.	61	29.87	NW	..	SW	fair—high clear from SW
	10	67	29.93	SW	—
	2 p. m.	76	29.95	W	light	W by S	—
	6	72	29.98	W	..	W	—
	10	67	30.00	W	—
Thursday, " 23	6 a. m.	63	30.10	N—NE	..	W	—
	10	66	30.15	N—NE	..	W	—
	2 p. m.	67	30.13	ESE	moderate	W	cloudy
	6	63	30.18	E	..	W	—
	10	53	30.27	NE	..	W	—
Friday, " 24	6 a. m.	62	30.34	ESE	..	W	—
	10	67	30.37	ESE	..	W	—
	2 p. m.	63	30.37	ESE	..	W	—
	6	59	30.34	ESE	..	W	—
	10	55	30.27	ESE	..	W	—
Saturday, " 25	6 a. m.	57	30.27	ESE	..	W	—
	10	57	30.27	ESE	..	W	—
	2 p. m.	58	30.18	ESE	..	W	—
	6	56	30.10	ESE	..	W	—
	10	56	30.07	ESE	..	W	—
Sunday, " 26	6 a. m.	58	29.98	NW	moderate	NW	fair
	10	64	29.98	NW	..	NW	—
	2 p. m.	71	29.87	SW	..	NW	—
	6	66	29.90	NW	..	NW	—
	10	66	29.90	NW	..	NW	—
Monday, " 27	6 a. m.	62	29.94	ESE	moderate	ESE	cloudy
	10	66	29.98	ESE	..	ESE	—
	2 p. m.	70	29.98	ESE	..	ESE	—
	6	65	29.98	ESE	..	ESE	—
	10	61	29.30	ESE	..	ESE	rainy—rain

HEMP MACHINE.—Arnold Zillner, Esq. of Giles county, has invented and obtained a patent for a machine for breaking and cleaning hemp, which, after repeated experiments, has been found admirably to answer the purpose intended. We have before us the certificate of twelve of the most respectable citizens of Bedford county, all hemp growers, who witnessed two experiments on a machine erected on the farm of Col. Samuel Mitchell, of that county. The first experiment resulted in the breaking and cleaning, in a very superior manner, of sixty-seven pounds of neat hemp, and twenty-two and a half pounds of tow that came out of it, in thirty-three minutes, with the assistance of six hands, exclusive of the drivers of the horses. On the second experiment, the result was twenty-eight and a half pounds of well broken and nicely cleaned hemp, and eight and a half pounds of tow that came out of it, in sixteen minutes, with the assistance of four hands, besides the drivers of the horses. In both instances, the machine was kept in operation by two mules and the same number of horses, with two small boys for drivers; the horses did not go faster than a brisk walk. The great advantage of the machine, in addition to the saving of labor, appears to be, that it saves all the lint in the shape of hemp or tow, separating the tow from the hemp, and leaving the latter very smooth, straight and clean. We understand that with four good horses, the machine will easily turn out fifteen hundred weight of clean hemp per day. Boys from twelve to fifteen years of age, or women, possess ample strength to attend it. The gentlemen who witnessed the experiments are all conversant with the culture of hemp, and they unite in recommending it as the most valuable machine within their knowledge for breaking and cleaning hemp. One of them, who has been for the last six or seven years a manufacturer of hemp into bagging and rope, considers the hemp broken and cleaned in this machine superior to that broken any other way, as it will make less tow in hackling, and the tow that is separated from the hemp in the process will answer very well for making baling rope. We understand the patentee will be in this place shortly, when those who desire it will have an opportunity of obtaining further information.—[Nashville paper.]

[From the Albany Daily Argus.]

SARATOGA AND FORT EDWARD RAILROAD.—We are gratified to learn that this Company is now fully organized, and commences its operations under the most favorable auspices. An election was held in this city yesterday, and the following gentlemen chosen Directors of the Road for the ensuing year, viz: C. C. Cambreleng, W. G. Bucknor, and A. Hamilton, of New-York; Erastus Corning, John Townsend, James Porter, and Lewis Benedict, of Albany; John I. De Graff, of Schenectady; and G. M. Davison, of Saratoga Springs.

At a subsequent meeting of the Directors, the following appointments were made:

C. C. Cambreleng, President.
John Townsend, Vice-President.
W. G. Bucknor, Treasurer.
John I. De Graff, Secretary.
John Townsend,
John I. De Graff, and
G. M. Davison,
William E. Young, Engineer.

We understand that a survey is forthwith to be commenced, and that it is the intention of the directors to complete the road early next summer. The Schenectady and Saratoga Railroad Company, 21 1.2 miles in length, was completed (save the intermediate point at Ballston) within nine months. The line of this road is 16 miles, of an average easier constructed than that. The route indeed is represented to be highly favorable for the construction of a Railroad.

This improvement, besides its separate advantages, will be of great public utility as a continuation of the Mohawk and Saratoga roads; and when completed, will form a continuous line of Railroad communication from this city to Fort Edward, a distance of fifty-four miles, and within about twenty miles of Whitehall; giving to travellers on the route from Lake Champlain to the South, an easy, economical and expeditious mode of conveyance.

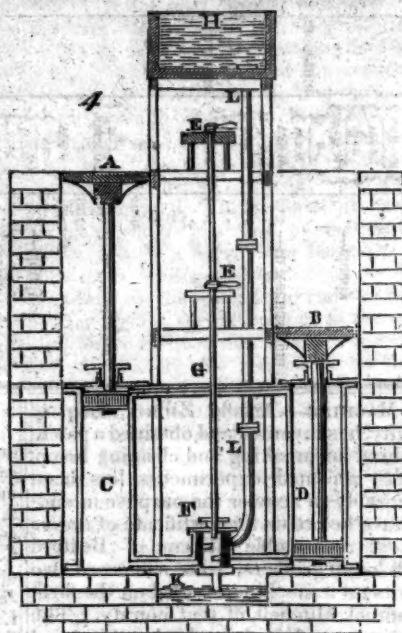
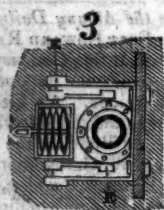
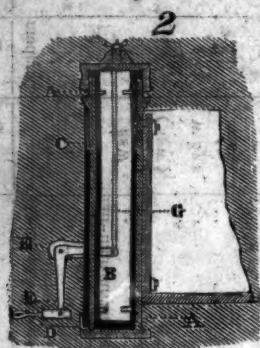
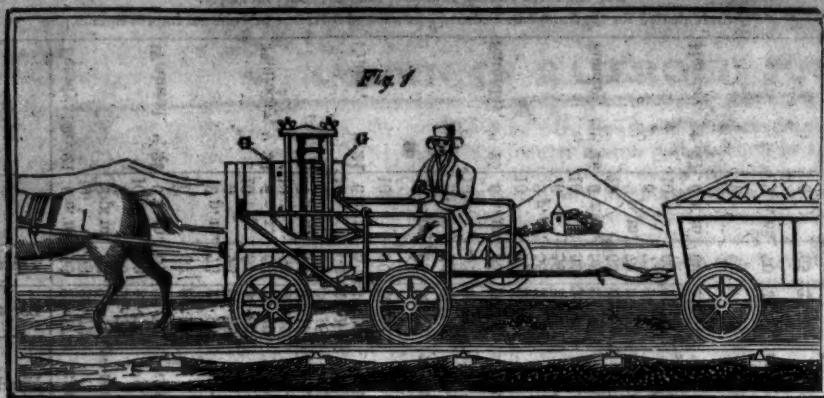
The eye of the master will do more work than both his hands. Not to oversee workmen is to leave them your purse open.

He that lives upon hope will die fainting—industry need not wish.

There are no gains without pains.

TO CORRESPONDENTS.

The communications of "U. A. B." "R. B." and "J. W." are received: our columns were, however, previously occupied. They will be attended to next week.



Milne's Mercurial Dynamometer, and Railway Lock for raising Carriages from one Level to another. [From the London Mechanics' Magazine.]

In our review of Mr. Milne's excellent "Practical View of the Steam Engine," we made mention of a mercurial dynamometer, for which Mr. M. had received the honorary gold medal of the Highland Society of Scotland. We now proceed to fulfil our promise of extracting from Mr. M.'s "Appendix" the following descriptive particulars of this instrument; and shall subjoin thereto an account of an ingenious apparatus which Mr. M. has also devised for raising or lowering railway carriages from one level to another.

THE DYNAMOMETER.—Practical engineers complain that those dynamometers which indicate the quantum of force applied by a horse upon a railway, by the inflection of springs, lose their elasticity when kept at work for a considerable time; the oscillations of the index-pointer, too, make it impossible to ascertain the medium of unequal draught applied by the animal in stepping out. Such also is the case when any other common instrument is used for this purpose. Both of these defects are completely obviated by the mercurial dynamometer now to be described. This instrument consists of a hollow metallic cylinder, A, fig. 2, in which is placed a floating piston, B, which should be about one tenth of an inch less in diameter than the cylinder in which it must move freely up or down. To prevent friction, four small rollers should be inserted into the side of this wooden float, both at its top and bottom;

which rollers should not project further than to admit of the piston being "shake-free" within its cylinder. In order, also, to prevent absorption of the mercury, the wood should be coated with bees' wax mixed with whitening or with lamp-black. These things being attended to, and a portion of mercury placed within the cylinder, by pushing down the piston the fluid will ascend in a thin film between it and the cylinder, till the statical weight of the mercury, acting on the base of the floating piston, balances the force exerted in pushing it down. Hence, since the statical weight of the fluid increases reciprocally as the height to which it is caused to ascend by its displacing force, so must its various points of height within the cylinder be a measure of the force in equilibrio with the statical weight of the fluid.

Such being the construction of this dynamometer, it is only necessary to fix it in a vertical position to the front of the foremost of a train of waggons, and to turn the direction of the horses' draught in such a manner as to cause it to pull down the floating piston; while a glass tube exhibits the height of the fluid, and consequently the force exerted by the animal. To prevent any sudden elevations or depressions in the mercury in the tube, from the irregularity of the horses' draught, the socket in which it is placed has a ventricle at D, the diameter of which is .033 of an inch, while that of the glass tube is .250; wherefore $\frac{.250}{.033} = 57.4$; hence the elevation or depression of the mercury in the tube must be 57.4 times less

than in the cylinder; the celerity of which fluid, too, is still further reduced by springs attached to the draught-hook, as seen in the plan, fig. 3. Since this machine was first constructed, it has occurred to Mr. Milne that, by attaching a stop-cock, the celerity of the motion of the mercury in the glass tube could be regulated to any required extent with the utmost exactness. In addition to these contrivances, oscillations of the fluid might be still further prevented by making the yoke-levers, E, shorter than those which pull down the piston. The friction of the arbor, F, might also be much lessened, by making its extremities similar to the bearing-pivots of a common balance.

Mr. Granger, the engineer, having placed this dynamometer on a carriage (represented in fig. 1) so constructed that neither the weight of the instrument nor of the persons upon it should affect the results, made a number of very interesting and useful experiments with it on the Kirkintilloch Railway. The first object in these experiments was to ascertain the capabilities of the dynamometer; on which head nothing can be more satisfactory than the testimony Mr. G. has given. "It is altogether superior," he says, "to any other I have seen; and it is the opinion of several engineers, who have seen it at work, that it is the best instrument for engineering purposes that has ever been tried." A long and circumstantial narrative of these experiments is given, but it is only necessary that we should here place before our readers the principal facts which they have established with respect to friction on railways:

1. The medium friction of a train of five waggons on a level part of the railway was 9 lbs. per ton; while on a curved part, with a radius of about 800 feet, it was 18 lbs. per ton.

2. A draught of 10.8 lbs. per ton was required to travel at the rate of three miles an hour when the rails were dry, and only 6.8 lbs. when wet.

3. On a level the force exerted by horse was observed to vary from 90 to 110 lbs., but when the train came to a part of the railway which inclined at the rate of 1 in 280, the waggons descended freely by their own gravity.

4. On a descent of 1 in 117, a waggon with wheels 2.5 feet in diameter carried 1020 lbs. more weight than one with 3 feet wheels, at the same rate of speed and with the same power applied; but on a curve with a radius of a thousand feet, the 3 feet wheels proved superior to the 2.5—a circumstance which Mr. Milne ascribes to the axles of the 3 feet wheels being of two pieces, meeting within a bush at the centre, while the 2.5 wheels were attached by an inflexible axle, whence it followed, in the case of the former, that "all the wheels would roll upon the rails of different radii, independent of the motions of each other."

5. The average force of draught required on a level at 3.5 miles per hour was 8 lbs. per ton; at 6.66 miles, 9.5 lbs.; at 7.5 miles, 10.2 lbs.; at 8 miles, 10.67 lbs.; at 8.57 miles, 11.63 lbs.

THE RAILWAY LOCK.—Let A and B, fig. 4, be two platforms, on which the waggons are to be elevated or let down; A being at the upper level and B at the lower. C and D are two cast iron cylinders filled with water, and having water-tight pistons sup-

porting the platforms, A and B. Suppose, now, that a train of waggons has been placed on the platform, B, to be raised to the upper level, and that a greater weight is about to descend upon A; then by turning the handle, E, of the fourway-valve, F, to a proper point on an index beneath it, the superior weight on A will press the water below its piston through the valve F into D, and thereby elevate the weight upon B; the fluid above the piston in D passing over into C by the pipe G. But suppose there is no counter-weight ready to descend on A when it is required to raise a load on B, then by turning the handle E, the water in the cistern H will descend and press upon the piston D, while simultaneously the water above D will pass off through the pipe G into C, and the water below the piston in C will make its exit through one of the water-ways of the valve F. Or if, on the other hand, there should be a load descending on A when there is none ascending on B, the valve F has only to be turned in proportion to the load (a matter which practice would easily determine), when a corresponding weight of water will be driven from the cylinders up the pipe and into the cistern H; in which case the cylinders below the ascending platform will fill themselves from the well K. The power of a machine of this kind may be stated as being equal to the weight of a column of water whose base is equal to the height of the fluid in the pipe L; and were this pipe a transparent tube, with a graduated scale attached to it, the height of the fluid in the tube would clearly point out the quantity of weight incumbent on one or other of the platforms, *minus* the friction of the pistons.

Babbage on the Economy of Manufactures.

(Continued from page 213.)

SAVING TIME IN NATURAL OPERATIONS.

33. The process of tanning will furnish us with a striking illustration of the power of machinery in accelerating certain processes in which natural operations have a principal effect. The object of this art is to combine a certain principle called *tanning* with every particle of the skin to be tanned. This in the ordinary process is accomplished by allowing the skins to soak in pits containing a solution of tanning matter: they remain in the pits six, twelve, or eighteen months; and in some instances, (if the hides are very thick,) they are exposed to the operation for two years, or even during a longer period. This length of time is apparently required in order to allow the tanning matter to penetrate into the interior of a thick hide. The improved process consists in placing the hides with the solution of tan in close vessels, and then exhausting the air. The consequence of this is to withdraw any air which might be contained in the pores of the hides, and to employ the pressure of the atmosphere to aid capillary attraction in forcing the tan into the interior of the skins. The effect of the additional force thus brought into action can be equal only to one atmosphere, but a farther improvement has been made: the vessel containing the hides is, after exhaustion, filled up with a solution of tan; a small additional quantity is then injected with a forcing-pump. By these means any degree of pressure may be given which the containing vessel is capable of supporting; and it has been found that, by employing such a method, the thickest hides may be tanned in six weeks or two months.

34. The same process of injection might be applied to impregnate timber with tar, or any other substance adapted to preserve it from decay; and if it were not too expensive, the deal floors of houses might thus be impregnated with alumine or other substances, which would

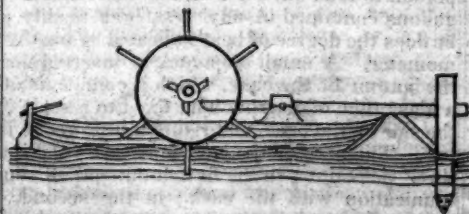
render them much less liable to be accidentally set on fire. Some idea of the quantity of matter which can be injected into wood, by great pressure, may be formed from considering the fact stated by Mr. Scoresby, respecting an accident which occurred to a boat of one of our whaling-ships. The line of the harpoon being fastened to it, the whale in this instance dived directly down, and carried the boat along with him. On returning to the surface the animal was killed, but the boat, instead of rising, was found suspended beneath the whale by the rope of the harpoon; and on drawing it up, every part of the wood was found to be so completely saturated with water as to sink immediately to the bottom.

35. The operation of bleaching linen in the open air is one for which considerable time is necessary; and although it does not require much labor, yet, from the risk of damage and of robbery from long exposure, a mode of shortening the process was highly desirable. The method now practised, although not mechanical, is such a remarkable instance of the application of science to the practical purposes of manufactures, that in mentioning the advantages derived from shortening natural operations, it would have been scarcely pardonable to have omitted all allusion to the beautiful application of chlorine, in combination with lime, to the art of bleaching.

36. Another instance more strictly mechanical occurs in some countries where fuel is expensive, and the heat of the sun is not sufficient to evaporate the water from brine springs. The water is first pumped up to a reservoir, and then allowed to fall in small streams through faggots. Thus it becomes divided; and, presenting a large surface, evaporation is facilitated, and the brine which is collected in the vessels below the faggots is stronger than that which was pumped up. After thus getting rid of a large part of the water, the remaining portion is driven off by boiling. The success of this operation depends on the circumstance of the atmosphere not being saturated with moisture: if the air, at the time the brine falls through the faggots, holds in solution as much moisture as it can contain in an invisible state, none can be absorbed from the salt water, and the labor expended in pumping is entirely wasted. The state of the air, as to dryness, is therefore an important consideration in fixing the time when this operation is to be performed; and an attentive examination of its state, by means of the hygrometer, might be productive of some economy of labor.

37. In some countries, where wood is scarce, the evaporation of salt water is carried on by a large collection of ropes, which are stretched perpendicularly. The water passing down them deposits the sulphate of lime which it held in solution, and gradually incrusts the ropes, so that in the course of twenty years, when they are nearly rotten, they are sustained by the surrounding incrustation, thus presenting the appearance of a vast collection of small columns.

38. Amongst natural operations perpetually altering the surface of our globe, there are some which it would be advantageous to accelerate. The wearing down of the rocks which impede the rapids of navigable rivers is one of this class. A very beautiful process for accomplishing this object has been employed in America. A boat



is placed at the bottom of the rapid, and kept in its position by a long rope, which is firmly fixed on the bank of the river near the top. An axis, having a wheel similar to the paddle-wheel of a steamboat fixed at each end of it, is placed

across the boat; so that the two wheels and their connecting axis shall revolve rapidly, being driven by the force of the passing current. Let us now imagine several beams of wood shod with pointed iron fixed at the ends of strong levers, projecting beyond the bow of the boat, as in the prefixed representation.

If these levers are at liberty to move up and down, and if one or more projecting pieces, called *cams*, are fixed on the axis opposite to the end of each lever, the action of the stream upon the wheels will keep up a perpetual succession of blows. The sharp-pointed shoe, striking upon the rock at the bottom, will continually detach small pieces, which the stream will immediately carry off. Thus, by the mere action of the river itself, a constant and most effectual system of pounding the rock at its bottom is established. A single workman may, by the aid of a rudder, direct the boat to any required part of the stream; and when it is necessary to move up the rapid, as the channel is cut, he can easily cause the boat to advance by means of a capstan.

39. When the object of the machinery just described has been accomplished, and the channel is sufficiently deep, a slight alteration converts the apparatus to another purpose almost equally advantageous. The stampers and the projection pieces on the axis are removed, and a barrel of wood or metal, surrounding part of the axis, and capable, at pleasure, of being connected with or disconnected from the axis itself, is substituted. The rope which hitherto fastened the boat is now fixed to this barrel; and if the barrel is loose upon the axis, the paddle-wheels make the axis only revolve, and the boat remains in its place: but the moment the axis is attached to its surrounding barrel, this begins to turn, and winding the rope upon itself, the boat is gradually drawn up against the stream, and may be employed as a kind of tug-boat for all the vessels which have occasion to ascend the rapid. When the tug-boat reaches the summit, the barrel is released from the axis, and friction being applied to moderate its velocity, the boat is allowed to descend.

EXERTING FORCES TOO GREAT FOR HUMAN POWER, AND EXECUTING OPERATIONS TOO DELICATE FOR HUMAN TOUCH.

40. It requires some skill and a considerable apparatus to enable many men to exert their whole force at a given point, and when this number amounts to hundreds or to thousands, additional difficulties present themselves. If ten thousand men were hired to act simultaneously, it would be exceedingly difficult to discover whether each exerted his whole force, and, consequently, to be assured that each man did the duty for which he was paid. And if still larger bodies of men or animals were necessary, not only would the difficulty of directing them become greater, but the expense would increase from the necessity of transporting food for their subsistence.

The difficulty of enabling a large number of men to exert their force at the same instant of time has been almost obviated by the use of sound. The whistle of the boatswain occasionally performs this service; and in removing, by manual force, the vast mass of granite, weighing above 1400 tons, on which the equestrian figure of Peter the Great is placed at St. Petersburg, a drummer was always stationed on its summit to give the signal for the united efforts of the workmen.

An interesting discovery was made a few years since, by Champollion, of an ancient Egyptian drawing, in which a multitude of men appeared harnessed to a huge block of stone, on the top of which stood a single individual with his hands raised above his head, apparently in the act of clapping them, for the same purpose of insuring the exertion of their combined force at the same moment of time.

41. In all our larger manufactories numerous instances occur of the application of the power of steam to overcome resistances which it would require far greater expense to surmount by means of animal labor. The twisting of the

largest cables, the rolling, hammering, and cutting large masses of iron, the draining of our mines, all require enormous exertions of physical force continued for considerable periods of time. Other means are had recourse to when the force required is great, and the space through which it is to act is small. The hydraulic press of Bramah can, by the exertion of one man, produce a pressure of 1500 atmospheres, and with such an instrument a hollow cylinder of wrought iron, three inches thick, has been burst. In riveting together the iron plates out of which steam engine boilers are made, it is necessary to produce as close a joint as possible. This is accomplished by using the rivets red-hot; while they are in that state the two plates of iron are rivetted together, and the contraction which the rivet undergoes in cooling draws them together with a force which is only limited by the tenacity of the metal of which the rivet itself is made.

42. It is not alone in the greater operations of the engineer or the manufacturer, that those vast powers which man has called into action, in availing himself of the agency of steam, are fully developed. Wherever the individual operation demanding little force for its own performance is to be multiplied in almost endless repetition, commensurate power is required. It is the same "giant arm which twists the largest cable," that spins from the cotton plant an "almost gossamer thread." Obedient to the hand which called into action its resistless powers, it contends with the ocean and the storm, and rides triumphantly through dangers and difficulties unattempted by the older modes of navigation. It is the same engine that, in its more regulated action, weaves the canvass it may one day supersede; or, with almost fairy fingers, entwines the meshes of the most delicate fabric that adorns the female form.*

43. The Fifth Report of the Select Committee of the House of Commons on the Holyhead Roads furnishes ample proof of the great superiority of steam vessels. The following extracts are taken from the evidence of Captain Rogers, the commander of one of the packets:

Question.—Be so good as to acquaint the Committee in what manner the communication has been kept open between Holyhead and Dublin by steam packets, and what has been the success of the experiment of establishing them on that station.

Answer.—We have done every thing that could be done, by steamboats; and they will go, no doubt, when a sailing vessel will not—that has been proved.

Question.—Are you not perfectly satisfied, from the experience you have had, that the steam vessel you command is capable of performing what no sailing vessel can do?

Answer.—Yes.

Question.—During your passage from Gravesend to the Downs, could any square-rigged vessel, from a first-rate down to a sloop of war, have performed the voyage you did in the time you did it in the steamboat?

Answer.—No; it was impossible. In the Downs we passed several Indiamen, and 150 sail, there, that could not move down the Channel; and at the back of Dungeness we passed 120 more.

Question.—At the time you performed that voyage, with the weather you have described, from the Downs to Milford, if that weather had continued twelve months, would any square-rigged vessel have performed it?

Answer.—They would have been a long time about it; probably would have been weeks instead of days. A sailing vessel would not have beat up to Milford, as we did, in twelve months.

44. The process of printing on silver paper, which is necessary for bank-notes, is attended with some inconvenience, from the necessity of damping the paper previously to taking the

impression. It was difficult to do this uniformly; and in the process of dipping a parcel of several sheets together into a vessel of water, the outside sheets becoming much more wet than the others, were very apt to be torn. A method has been adopted at the Bank of Ireland which obviates this inconvenience. The whole quantity of paper to be damped is placed in a close vessel, from which the air is exhausted; water is then admitted, and every leaf is completely wetted; the paper is then removed to a press, and all the superfluous moisture is squeezed out.

REGISTERING OPERATIONS.

45. One of the most singular advantages we derive from machinery is in the check which it affords against the inattention, the idleness, or the knavery, of human agents. Few occupations are more wearisome than counting a series of repetitions of the same fact; the number of paces we walk affords a tolerably good measure of distance passed over, but the value of this is much enhanced by possessing an instrument, the pedometer, which will count for us the number of steps we have made. A piece of mechanism of this kind is sometimes applied to count the number of turns made by the wheel of a carriage, and thus to indicate the distance travelled: an instrument similar in its object, but differing in its construction, has been used for counting the number of strokes made by a steam-engine, and the number of coins struck in a press. One of the simplest instruments for counting any series of operations was contrived by Mr. Donkin.*

46. Another instrument for registering is used in some establishments for calendering and embossing. Many hundred thousand yards of calico and stuffs pass weekly through these operations, and as the price paid for the process is small, the value of the time spent in measuring them would bear a considerable proportion to the profit. A machine has, therefore, been contrived for measuring and registering the length of the goods as they pass rapidly through the hands of the operator, and all chance of erroneous counting is thus avoided.

47. Perhaps the most useful contrivance of this kind is one for ascertaining the vigilance of a watchman. It is a piece of mechanism connected with a clock placed in an apartment to which the watchman has not access, but he is ordered to pull a string situated in a certain part of his round once in every hour. The instrument, aptly called a *tell-tale*, informs the owner whether the man has missed any, and what hours during the night.

48. It is often of great importance, both for regulations of excise as well as for the interests of the proprietor, to know the quantity of spirits or of other liquors which have been drawn off by those persons who are allowed to have access to the vessels during the absence of the inspectors or principals. This may be accomplished by a peculiar kind of stopcock, which will, at each opening, only discharge a certain measure of fluid,—the number of times the cock has been turned being registered by a counting apparatus, accessible only to the master.

49. The time and labor consumed in guaging casks partly filled has led to an improvement, which, by the simplest means, obviates a considerable inconvenience, and enables any person to read off, on a scale, the number of gallons contained in any vessel, as readily as he does the degree of heat indicated by his thermometer. A small stop-cock is inserted near the bottom of the cask, which it connects with a glass tube of narrow bore fixed to a scale on the side of the cask, and rising a little above its top. The plug of the cock may be turned into three positions: in the first it cuts off all communication with the cask; in the second, it opens a communication between the cask and the glass tube; and, in the third, it cuts off the connection between the cask and the tube, and opens a communication between the tube and

any vessel held beneath the cock to receive its contents. The scale of the tube is graduated by opening the communication between the cask and tube, and pouring into the cask a gallon of water. A line is then drawn on the scale opposite the place in the tube to which the water rises. This operation is repeated, and at each successive gallon a new line is drawn. Thus the scale being formed by actual measurement,* both the proprietor and the excise officer see, on inspection, the contents of each cask, and the tedious process of guaging is altogether dispensed with. Other advantages accrue from this simple contrivance, in the great economy of time which it produces in making mixtures of different spirits in taking stock, and in receiving spirit from the distiller.

50. The gas-meter, by which the quantity of gas used by each consumer is ascertained, is another instrument of this kind. They are of several forms, but all of them intended to register the number of cubic feet of gas which has been delivered. It is very desirable that these meters should be obtainable at a moderate price, and that every consumer should employ them; because, by making each purchaser pay only for what he consumes, and by preventing that extravagant waste of gas which we frequently observe, the manufacturer of gas will be enabled to make an equal profit at a diminished price to the consumer.

51. The sale of water, by the different companies in London, might also, with advantage, be regulated by a different kind of meter. If such a system were adopted, much water which is now allowed to run to waste would be saved, and an unjust inequality between the rates charged on different houses by the same company be avoided.

52. Another subject to which machinery for registering operations is applied with much advantage is the determination of the average effect of natural or artificial agents. The mean height of the barometer, for example, is ascertained by noting its height at a certain number of intervals during the twenty-four hours. The more these intervals are contracted, the more correctly will the mean be ascertained; but the true mean ought to participate in each momentary change which has occurred. Clocks have been proposed and made for this purpose, and the principle adopted has been that of moving a sheet of paper, slowly and uniformly, before a pencil fixed to a float upon the surface of the mercury in the cup of the barometer. Sir David Brewster proposed, several years ago, to suspend a barometer, and swing it as a pendulum. The variations in the atmosphere would thus alter the centre of oscillation, and the comparison of such an instrument with a good clock would enable us to ascertain the mean altitude of the barometer during any interval of the observer's absence.†

Instruments might also be contrived to determine the average force of traction of horses—of the wind—of a stream—or of any other irregular and fluctuating effort of animal or natural force.

53. There are several instruments contrived for awakening the attention of the observer at times previously fixed upon. The various kinds of alarms connected with clocks and watches are of this kind. In some instances it is desirable to be able to set them so as to give notice at many successive and distant points of time, such as those of the arrival of given stars on the meridian. A clock of this kind is used at the Royal Observatory at Greenwich.

Repeating clocks and watches may be considered as instruments for registering time, which communicate their information only when the owner requires it, by pulling a string, or by some similar application.

* This contrivance is due to Mr. Henneky, of High Holborn, in whose establishment it is in constant employment.

† About seven or eight years since, without being aware of Sir David Brewster's proposal, I adapted a barometer as a pendulum to the works of a common eight-day clock: it remained in my library for several months, but I have mislaid the observations which were made.

* The importance and diversified applications of the steam engine were most ably enforced in the speeches made at a public meeting, held (June, 1824) for the purpose of proposing the erection of a monument to the memory of James Watt; these were subsequently printed.

* Transactions of the Society of Arts, 1819, p. 116.

ECONOMY OF THE MATERIALS EMPLOYED.

54. The precision with which all operations by machinery are executed, and the exact similarity of the articles thus made, produce a degree of economy in the consumption of the raw material, which is in some cases of great importance. The earliest mode of cutting the trunks of a tree into planks was by the use of the hatchet or the adze. It might, perhaps, be first split into three or four portions, and then each portion was reduced to a uniform surface by those instruments. With such means the quantity of plank produced would probably not equal the quantity of the raw material wasted by the process; and, if the planks were thin, would certainly fall far short of it. An improved tool, the saw, completely reverses the case: in converting a tree into thick planks it causes a waste of a very small fractional part; and even in reducing it to planks of only an inch in thickness, it does not waste more than an eighth part of the raw material. When the thickness of the plank is still farther reduced, as is the case in cutting wood for veneering, the quantity of material destroyed again begins to bear a considerable proportion to that which is used; and, hence, circular saws, having a very thin blade, have been employed for such purposes. In order to economize still farther the more valuable woods, Mr. Brunel contrived a machine which, by a system of blades, cuts off the veneer in a continuous shaving, thus rendering the whole of the piece of timber available.

55. The rapid improvements which have taken place in the printing press during the last twenty years afford another instance of saving in the materials consumed, which is interesting from its connection with literature, and valuable because admitted and well ascertained by measurement. In the old method of inking type, by large hemispherical balls, stuffed and covered with leather, the printer, after taking a small portion of ink from the ink-block, was continually rolling them in various directions against each other, in order that a thin layer of ink might be uniformly spread over their surface. This he again transferred to the type by a kind of rolling action. In such a process, even admitting considerable skill in the operator, it could not fail to happen that a large quantity of ink should get near the edges of the balls, which, not being transferred to the type, became hard and useless, and was taken off in the form of a thick black crust. Another inconvenience also arose—the quantity of ink spread on the block not being regulated by measure, and the number and direction of the transits of the inking-balls over each other depending on the will of the operator, and being irregular, it was impossible to place on the type a uniform layer of ink, of exactly the quantity sufficient for the impression. The introduction of cylindrical rollers of an elastic substance, formed by the mixture of glue and treacle, superseded the inking-balls, and produced considerable saving in the consumption of ink: but the most perfect economy was only to be produced by mechanism. When printing presses, moved by the power of steam, were introduced, the action of these rollers was found well adapted to the performance of the machine; and a reservoir of ink was formed, from which one roller regularly abstracted a small quantity at each impression. From three to five other rollers spread this portion uniformly over a slab, (by most ingenious contrivances varied in almost each kind of press,) and another travelling roller, having fed itself on the slab, passed and repassed over the type just before it gave the impression to the paper.

The following is an account of the results of an accurate experiment upon the effect of the process just described, made at one of the largest printing establishments in the metropolis.* Two hundred reams of paper were printed off, the old method of inking with balls being employed; two hundred reams of the same paper, and for the same book, were then

printed off in the presses which inked their own type. The consumption of ink by the machine was to that by the balls as *four to nine*, or rather less than one half. In order to show that this plan of inking puts the proper quantity of ink upon the type, we must prove, first,—that it is not too little: this would soon have been discovered from the complaints of the public and the booksellers; and, secondly,—that it is not too much. This latter point is satisfactorily established by a reference to the frequency of the change of what is called the *set-off sheet*, in the old method: A few hours after one side of a sheet of paper has been printed upon, the ink is sufficiently dry to allow it to receive the impression upon the other; and, as considerable pressure is made use of, the tympan on which the side first printed is laid, is guarded from soiling it by a sheet of paper called the *set-off sheet*. This paper receives in succession every sheet of the work to be printed, and acquires from them more or less of the ink, according to their dryness, or the quantity upon them. It was necessary in the former process, after about one hundred impressions, to change the *set-off sheet*, which in that time became too much soiled for farther use. In the new method of printing by machinery, no *set-off sheet* is used, but a blanket is employed as its substitute; this does not require changing above once in five thousand impressions, and instances have occurred of its remaining sufficiently clean for twenty thousand. Here, then, is a proof that the quantity of superfluous ink put upon the paper in machine-printing is so small, that if multiplied by five thousand, and in some instances even by twenty thousand, it is only sufficient to render useless a single piece of clean cloth.*

* In the very best kind of printing, it is necessary, in the old method, to change the set-off sheet once in twelve times. In printing the same kind of work by machinery the blanket is changed once in 2000.

[From the Southern Agriculturist.]

REELING SILK.—With respect to the subject of silk, I have but little to say, when contrasting my knowledge of the business with those who are more experienced in the practical pursuit of it. But inasmuch as may pertain to the general good of the community, permit me to "cast in my mite." I amused myself last spring with about 2000 silk worms: as usual with me, I fed them upon the leaves of the common black mulberry of the country. They grew to their general size, in excellent health and vigor. As they matured they commenced spinning, and considering their situation they did well. The cocoons which they made were not generally as large as I had the year previous, which I think was occasioned by their being too much disturbed, owing to their situation. The silk which they produced is of excellent quality, exhibiting a very bright and lively fibre. There is, however, a manifest difference in the fineness and softness of the silk. Some of the cocoons are more coarse and harsh than the others; this difference attracted my attention, and by inspection I discovered that the lightest colored cocoons were the finest and softest silk. I have some large fair cocoons that are but a shade less than white; they uniformly are the finest and softest silk. This difference I cannot well account for, for they were produced by the same family of worms, were fed together on the same food, at the same time, and subject to the same vicissitudes. I can only admit that this difference in excellence is produced by worms of excellent constitutions; further, I submit to be corrected by my superiors on the subject.

When the cocoons were matured, I gathered them, and selected such as I intended for propagation; the rest were indiscriminately prepared for reeling: this I did in a very ready, simple, and easy manner, by which the silk is much improved. In order to destroy the vitality of the chrysalides, I procured a tin box with a top cover which shut very close; as I filled the box with cocoons, I sprinkled them with good spirits of wine, then closed the box tight,

and set it in the sun. The heat soon evaporated the spirits, which when dissipated pervaded the whole cavity of the box, saturated the cocoons, and instantly suffocated the chrysalides. Thus the vital functions of the insect were destroyed without languishing. This process may be performed every three hours with the same box, while there is a warm sun. The spirits act upon the animal gummy matter of which the silk consists, dissolves it and sets the fibre free; improves the silk by leaving it bright, soft, and lively, and causes it to yield its fibres from the cocoon to the reel with the greatest freedom. Thus the process of reeling is performed with a facility unusually pleasing and profitable; for by this process a much greater quantity of reeling silk may be obtained from the same cocoon than is usually the case with the water bath, and by baking, which are both tedious and injurious to the silk, and of course unprofitable. I have had a ball or cocoon to run over the floor, similar to a ball of yarn, while I held the fibres in my fingers. For the principle in the use of spirits of wine, as above stated, I refer to "Dr. Lardner's excellent book on silk manufactures." To the application of the spirits of wine I have added camphor, which renders the process more immediately effectual, and is of much benefit to the cocoons, which are thus cured for market. Let objections (if any to this principle) be made. Thus I have completed my principal design, in having obtained a knowledge of the nature, disposition and general properties of the silk worm, and particularly so as concerns the congeniality of this climate with their health and the quality of their silk. With this attainment I am highly gratified. In faith, I believe I am willing to hazard an opinion, so far as to say that with a grove of the white, or any other mulberry suitable for the production of silk, a suitable building, with the necessary fixtures for the business, silk may be made in Louisiana and its vicinity, equal in quantity and quality to any other part of the United States. * * *

I further believe, that it may be made a business of profit to the man of small capital—that in three months of every year, a single person well acquainted with the business may, with the aid of three small boys to gather leaves, &c. realize one thousand dollars in the product of labor from silk. I know of no business which I could more readily, and I think safely, recommend to every honest man, whose purse contains but few dollars, and whose house is ornamented with many healthy and promising children. I think that any and every industrious man, who will cultivate a grove of mulberry trees, and obtain the other fixtures necessary, simply suited to the business, may realize three hundred dollars annually to every child of 12 or 13 years of age, that is able to labor. Such an income would do much more than maintain a family with all the necessary comforts of life. As a commodity of commerce, silk has ever been, is now, and ever will be, a cash article; and while human necessities exist, it will find a market, and command as ready a sale as cotton or any other raw material. Such emolument holds out strong inducements, and kindly invites the laboring part of the community into the silken garden, where, by their industry, they may not only obtain the common comforts of life, but with them may enjoy luxury. Hence, let honest industry dispel penury and distress. Let every rational man reflect, look into himself, and consider the end and aim of his existence, he will see that there is nothing wanting in his temporal concerns to render him comfortable and happy, but prudent application and persevering industry with economy. He who will embrace these principles as a maxim of conduct, will not be under the disagreeable necessity of disgracing himself, by annoying his neighbor with "pray, my good sir, can you favor me with the loan of five dollars a day or so." Accept the friendship of

J. B. BREWER.

* This experiment was made at the establishment of Mr. Clowes, in Stamford street.

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MAY 25, 27, 28, 29, 30, 31—1833.

LITERARY NOTICES.

THREE YEARS IN NORTH AMERICA; by JAS. STUART; 2 vols.: *Harpers*.—This work, which has already passed through two editions in England, and been most cordially received by the British public, is prefaced by the American publishers with an interesting communication from Dr. Hosack; which, from the insight it gives into the warm and excellent character of the author, is a passport at once for him into our favor. The circumstances under which the Doctor became acquainted with Mr. Stuart, forms one of those beautiful incidents which are often related in fiction, but rarely touch us in real life. It appears that Dr. Hosack—but the story is so well told to our hands, that we prefer copying it from the page before us, to risk marring the relation by putting it in our own language:

The statement to which you referred in another part of your note, as made by Mr. Stuart relative to my intercourse with his friends and family in Scotland, is essentially correct: but there are some circumstances connected with it, which his kind feelings have led him to suppress, and thereby to diminish the obligation the kindness of his parents imposed upon me, which I will endeavor to supply, as essentially connected with the story he has partially related in his work, and which it is due to him as well as to myself should be made known. It ought to be premised that, upon my arrival in Edinburgh, in the autumn of 1792, a letter of introduction from the late Dr. Witherspoon, then president of the college at Princeton, made me known to the celebrated divine Dr. John Erskine of Lauriston, whose daughter was married to Dr. Charles Stuart, an eminent physician of Edinburgh, to whom I was also introduced by a letter from his particular friend the late Dr. Wistar of Philadelphia. Both Dr. Stuart and Dr. Erskine manifested to me every kindness in their power.—Besides their cordial welcome, and personal attentions in obtaining for me suitable lodgings, giving me every advice in the prosecution of my medical studies, introducing me to the medical professors, and to many of the literati of Edinburgh, I became domesticated in their families, receiving from them all the affectionate attention that I could have enjoyed in the paternal home I had left, and exciting in me feelings of gratitude never to be obliterated. You will therefore not be surprised at the incidents referred to in Mr. Stuart's narrative.

On a passage up the Hudson river, on board the steamboat North America, in June, 1830, I perceived my friend, the late Dr. Mitchell, standing at the side of the deck in conversation with a gentleman to me a stranger. Upon saluting the doctor he presented me to that gentleman as Mr. Stuart of Edinburgh. I immediately observed to him, "Sir, that is a name very dear to me;" to which he replied, "You refer, I presume, sir, to Professor Dugald Stewart." "No, sir, I refer to Dr. Charles Stuart, a physician, who was a father to me when I was in Edinburgh, and whose kindness I can never forget." He immediately dropped his head and was silent. I then added, "Sir, this was not all. I received similar kindness from a family with which Dr. Stuart was connected by marriage, the late Dr. Erskine, of Lauriston, in the vicinity of Edinburgh." I immediately found I had awakened very tender feelings in Mr. Stuart, for I perceived his eyes suffused and the tears trickling down his cheek. The conversation having terminated with Dr. Mitchell, Mr. Stuart took me by the arm, addressing me, "Dr. Hosack, after the kind expressions which have fallen from you, I cannot but make myself known to you. I am, sir, a son of the Dr. Charles Stuart, and the grandson of Dr. Erskine, of whom you spoke with so much gratitude and feeling. Although I am a stranger in this country, and wish to pass through it unknown, my feelings would not permit me to withhold myself from you." I then exacted from him the promise of further intercourse and acquaintance with him, and of giving me an opportunity, before he left the country, to reciprocate a portion of the kindness I had received from his parents and friends, when I was similarly situated as a stranger in his native land.

Mr. Stuart afterwards visited Dr. H. at his seat at Hyde Park, upon the beauties of which he seems to dwell with peculiar pleasure, when giving way to his lively admiration of the scenery of the Hudson; which he repeatedly speaks of as "this glorious

stream," "the loveliest of rivers," even after having indulged in the following animated description of its charms:

The Hudson not only contributes most essentially to the commercial prosperity and greatness of New York, but in no ordinary degree to the enjoyment of its inhabitants, and of every foreigner who is led to the United States. Where is there such a river or such scenery, not only so easily, but so luxuriously seen, so near any other capitals in the world? It is in the power of a European, on the very day of his arrival in the United States, without any exertion on his part, except a five minutes' walk from his hotel, to behold that part of this "exulting and abounding river," the sight of which is sufficient to repay him for all the annoyances attending a transatlantic voyage. I proceeded on 28th August from New York to Albany, in the North America steamer, the most beautiful and swift of the floating palaces on the Hudson, or, as I believe I may add with truth, in the world.

The distance is 154 miles, and the scenery throughout of the most interesting and diversified description. We feel as having seen more of the beauties of nature in one day than we have ever done before, far too much to allow us to recollect all that passed before us, or to give even a sketch of it.

The boat leaves the wharf in the very heart of the city of New York, surrounded by splendid objects; on the one side of the river, the city and bay of New York; and on the other, at the distance of a mile and a half, the city of Jersey, projected into the river, very much as Burnt Island is on the Frith of Forth, the promontory and pleasure grounds of Hoboken, and behind them the abrupt hills of the Wehawken. Those hills, which, when they approach the river, are called the Palisades, form in most places a precipitous wall, from 200 to 700 feet high, for about thirty miles on the western side of the river. The New-York, or eastern side, exhibits a waving outline of rich, cultivated, and undulating country, ornamented with villas, farm-houses and cottages, and bounded by sloping rising grounds.

The river itself expands into a noble bay, four or five miles wide, called the Tappan Sea, about thirty miles from New-York, at the top of which, ten miles farther on, the banks approach each other so closely, that the channel, through which the river has at a distant period forced its way by some violent convulsion, is not perceived until you almost enter it. Here we suddenly found ourselves in a narrow pass between precipitous mountain tops, rising on both sides from the water's edge to an elevation of 1200 or 1500 feet. These mountains or hills, as we should call them, are what are called the Highlands of the Hudson; and the entry to them seemed to us the most remarkable point on the river, not to be contemplated without feelings of the deepest interest. The river course continues to run in this defile among romantic hills covered with wood, sweetly inlaid with plateaus of green pasture, and of table land, for about twenty miles. The farm-houses and villages look as if they hung on the cliffs, or rose by terraces from the water edge. The river is of various breadths, from a mile and a half to two miles. The projecting rocks often force it to change its direction, so much, indeed, that you frequently appear to be sailing in a lake, from which you cannot discover an outlet.

The ocean tides carry sufficient depth of water for the largest vessels through the whole of this primitive mountain chain, exhibiting the only example yet discovered where this takes place, excepting on the St. Lawrence, which passes through a chain of primitive mountains, on a branch of which Quebec stands.

After leaving the Highlands, the banks of the river are comparatively low, 100 or 150 feet in height. The hills through which we had passed incline to the right, and do not break off until they reach the St. Lawrence. The river for sixty or seventy miles frequently opens into beautiful lakes and bays, with projecting and marked shores. Great part of this district, which is called the Valley of the Hudson, consists of good land and fine corn-fields, and is one of the richest parts of the state of New-York. The town of Newburgh on the one side, the village of Fishkill on the other, the noble terrace of Hyde Park, the Dutchess County, famed for its fertility, are all situated in the southern part of this reach. On the upper part of it, the grand range of mountains called the Catskills, about 3,000 feet high, which are a spur from the Alleghanies, and the populous city of Hudson, strikingly placed on a fine promontory, are the most prominent objects. From Hudson to Albany, about forty (30) miles, the Hudson has more the appearance of a river than below.

It is here ornamented with many islands—the shores become less steep—the country rich looking, and more peopled. Villas on the banks appear more frequently in approaching Albany, the view of which, from the river, is very striking. The oldest part of the city reaches to the water's edge, but a great part of it is on a fine elevation on the face of a hill.

Whether the glorious scenery of the Hudson be superior to that of the Rhine, the Danube, or any of the European rivers, which many of the Americans who have travelled in Europe maintain, I, who have not seen the greatest of those rivers, do not pretend to say; but I am very much mistaken, if there be anywhere continuously in Great Britain, so remarkable a combination of natural beauty and romantic scenery as on the Hudson between New-York and Albany. Nowhere in the British dominions can so great a variety of interesting and pleasing objects be seen in the course of a single day. The Trossachs, though in miniature, resemble the passage through the Highlands of the Hudson, in all respects but one, the grandeur of the bounding objects.

This just tribute to the prince of streams, the "Monarch Mohegan," (why can we not retain a name so expressive of his majestic and deep flowing tide?) is afterward rendered still warmer where Mr. Stuart calls our noble stream "the most beautiful of all beautiful rivers—admired the more the oftener seen." The craft which navigate its waters are thus described:—

The sailing vessels on the Hudson are extremely beautiful in form. They have no foresail, merely a jib and main sheet, bleached as white as a table cloth by the sun. The Americans may perhaps with some justice be accused of want of taste, in the sense in which the British generally understand the term.—But I suspect that in naval architecture, in the form of their ships, and boats of all descriptions, in their adaptation for sailing with speed, and their clean and handsome appearance, we ought to admit that they excel all other nations.

The fine eye which our author has for the beauties of Nature is already sufficiently apparent from the above extracts. But while gratified with descriptions from such a source, like that which follows, a degree of mortification arises in one's bosom to think that of those who pass their lives amid such scenes how few have the sense to appreciate or the taste to enjoy them:—

The shores of Staten Island are finely indented, and sprinkled with the white, clean looking villas of this country. The island rises quickly to a considerable height, containing an area of about fifty-two square miles.

The quarantine establishment and the adjoining village are pictures of cleanness, all painted of a bright white. The houses, hotels, &c. generally disjoined, and many of them enclosed in small gardens. The whole buildings are situated on a bank gently rising from the shore, and overhanging a beautiful bay below, in which there were some large ships, as well as a few of the elegant sailing craft, with which the bay of New York is always adorned. Behind the village the ground becomes abrupt, to a point at which a building is erected called the Pavilion, expressly on account of the splendor of the view, the top of which is, I should think, nearly 250 feet above the sea, consisting of handsome saloons, with balconies, piazzas, &c. on all sides, and a lookout place from the summit, from which the prospect is most glorious. I have never been more delighted with any of the prospects of this description which have charmed me most, on the Frith of Forth, the Clyde, the Bay of Dublin, or in the Isle of Wight.—I cannot help doubting whether there be a more magnificent prospect in the world. All the features which it contains are beautiful, and many of them splendid. Then the moving ships, pilot boats, and small craft, never allow the view of the water to be for two moments the same.

The view comprehends half a dozen friths, dividing by marked headlands, tracts of well-wooded and waving country; and it embraces not only the city of New York, surrounded with a vast mass of shipping, but the city of New-Jersey, projected into the bay, quite as much as Burnt Island is into the Frith of Forth, as well as the village of Newark. The cities lie too low, but they serve to convince the beholder that he is in the heart of a densely peopled country. Peninsulas, promontories, islands, isthmuses, land, in a variety of shapes, lie before him, and beyond all, the boundless Atlantic. New York, the magnificent Hudson, the Frith of Newark, and lands and hills of

Jersey are on the north; Long Island and its sound, the Narrows, and the Quarantine Ground, with the Atlantic, on the east, and the coast of New Jersey, Raritan Bay, Sandyhook, and the Atlantic, to the south; the whole forming a noble prospect in the heart of as rich looking a country as is in the world.

The opinions here expressed are elsewhere repeated with the same comparison in describing the approach to New-York:—

I had heard much of the beauty of the approach to New York from the sea, but the reality altogether exceeded my expectation. It is undoubtedly one of the most magnificent scenes in the world. I know of no more happy disposition of land and water, nor such variety of marked and pleasing features anywhere on the shores or rivers of the British Islands. Neither the Bay of Dublin, nor the Isle of Wight, nor the Frith of Forth, or Clyde, presents the works of nature on a grander scale, or in more varied and interesting aspects. That boldness of character which lofty hills and mountains produce is alone wanting. The hills which bound the prospect in three or four directions are no where above four or five hundred feet in height.

Within Sandy hook, the channel passes through the outer harbor of New York, called Raritan Bay, from one of the great rivers, which discharges itself into it. The bay is skirted by Long Island, and by the shores of New Jersey and Staten Island. About five miles from New York, Long Island and Staten Island approach each other within less than a mile, forming a strait, called the Narrows, from the northern part of which the sea view is splendid, commanding the harbor, or inner bay of New York, above twenty miles in circumference, with its islands and indented shores; and above all, in the centre of the bay, the Island of Manhattan, on the nearest or southern part of which is placed the city of New York, surrounded by its shipping. Half a dozen rivers, which in other countries we should call arms of the sea, viz. the Hudson, navigable for about 180 miles, the Raritan, Long Island Sound, the Passaic, the Hackensack, pour their waters into these bays, the shores of which, and of the Islands, are covered with ornamented villas and orchards. The sun was setting as we darted through the inner bay, decorated with the lightest and most graceful description of sailing boats we had ever seen; it had just set when our voyage was completed. The feelings of all the passengers, even of those to whom it was not new, were highly excited by such an exhibition of the beauties of nature, in such an evening, and at the most favorable moment for enjoying it. Words cannot express the delight with which a picture like this is seen by those who understand it.

The most partial burgher will be content with what Mr. Stuart says of the city itself.

We have now spent four days in the city, endeavoring to see those objects that are pointed out as best worthy of a traveller's attention; but the weather continues so exceedingly sultry, that we are resolved to discontinue the necessary exertion, and to set out, without delay, on a tour to the northern part of the state of New York, and to the Falls of Niagara. I must content myself, therefore, at present, with noticing what struck us as most remarkable, or as differing most from what we had been accustomed to see, in our peripatations through the metropolis of the New World. Its situation has been most happily chosen; in nearly the most central position on the shores of this great continent, with a harbor safe and deep, and of unlimited capacity, comprehending, as it does, the mouth of the Hudson itself; unrivalled in its facilities of intercourse with the interior parts of the country, not merely by means of its sounds and rivers, but by its recently constructed canals, which, through the exertions of the late governor of this state, De Witt Clinton, were completed and brought into full operation three years ago. The Erie canal, which will immortalize the name of Clinton, begins at that point in the river Hudson, about 160 miles to the northward of New York, where the river becomes no longer navigable for vessels of great size. The canal is above 360 miles long, communicating with Lake Erie, which is elevated 568 feet above the Hudson at low water, and, of course with Lakes Huron, Michigan and Superior, the most extensive repository of fresh water on the globe. The successful execution of this great work has led to splendid continuations of the system of water communication, especially to the canal, now far advanced, from Lake Erie to the Ohio, which continues the internal navigation from New York to the Ohio, Missouri, and Mississippi, and, of course to Pittsburgh, Cincinnati, St. Louis, New Orleans, and the Gulf of Mexico—

a length of internal water communication unparalleled in the world.

Our readers have already perceived from these quotations, if indeed they were not already familiar with the fact from the notices of this work in the British periodicals, that Mr. Stuart is a traveller of a very different complexion from the Fearsons, Halls, and Trollopes who have hitherto visited this country. Nothing, indeed, can be more liberal and gentleman-like than the general tone of his work. His perception of the moral and political fitness of things, so to speak, being as unbiassed and discriminating as his views of the natural beauties of the country. Errors of course there are in his work, as there must be in the observations of every foreigner, commenting upon the customs of a strange country, and accumulating as many facts as possible in regard to it. His mistakes, however, are very few, considering the great quantity of actual information embraced in the two volumes before us; while, as in the following extract there are not a few passages wherein Mr. Stuart gives us credit for qualities which, if we do possess, can hardly be claimed, at least in the degree to which he ascribes them to us. In speaking of the effect of money and office, for instance, he says:

In the United States, the slightest assumption of superiority over a person conceived to be lower merely in point of station or wealth is not tolerated.—Superiority is yielded to men of acknowledged talent alone. New York would be in a fever of joy were Mr. Clay, a man certainly of the first talents as a statesman in America, though at present unemployed and in retirement, to appear there; but the richest man in the United States,—such as Mr. Girard, who died lately at Philadelphia worth many millions,—though he appeared with as great a display of wealth as George the Fourth at his coronation, would command no respect or attention whatever.

The first part of this paragraph seems almost like broad satire in this political year 57: and for a comment upon the last sentence we would refer the reader to an admirable article in a back number of the New England Magazine upon the income that was offered up throughout the country to the gilded name of Girard, when the decease of the rich banker had made the extent of his wealth fully known. As to the "superiority which is yielded to men of acknowledged talent alone," the concession, we apprehend, is hardly made from intellectual considerations. It is that in a country like ours, where the paths of wealth and distinction are alike open to all, talent is both power and capital. But it must be practical talent, such as can be brought to bear in the actual concerns of life, and made a productive, if not a marketable commodity. It is estimated by its fruits, and not by its flowers; not by its possessor delighting a private circle, or shining in a public address; but by his getting heavy damages in a case of trespass, or carrying his country in the teeth of an opposition. And it is perhaps right that it should be so; for though we are far from being thorough utilitarians, we do believe that in a country like ours, where the ferment of a newly formed society so often sends the scum to the surface, or where, in other words, so much pretension of all kinds, like light people in a crowd, gets boosted (the word is only in Webster, but it is a good one) above the backs of others, the *reductio ad utilitatem* (what is he good for, what will it bring) is the safest of all tests to be applied, alike to windy speeches and puffed up assumption. But to return to Mr. Stuart, who thus winds up his observations upon the general condition of society in the United States:

There are, it is true, many accomplished and polished persons, in the best sense of the word, in the United States; but their number is infinitely smaller in reference to the population than in Great Britain. In this admission, I of course neither allude nor mean to allude to that class of persons whose mode of life I have already attempted to describe, who acquire artificial habits, and pass through life alike useless to themselves and to the world. They are

objects of pity in all countries. Our boasting, however, must be carried no farther than to the class of the highly educated, accomplished, and refined; for the great mass of the people of the United States are so much better educated, so much better informed, and possess so much better manners, so much more self-possession and ease, that it is absolutely ludicrous to compare the people of Great Britain with whom in those respects.

It will easily be perceived, from this light examination of its contents, that Mr. Stuart's book will do more to remove with foreigners the lead of misrepresentation that has been heaped upon the country, than all the vindictive replies that could possibly be hurled from this side of the Atlantic, upon our offending brethren over the way. But would that it could do more—would that it could give our countrymen that quiet appreciation—that assured and firm conviction of the blessings of the land they live in, and of the value of that constitution which makes that land half what it is, which would make them look only at home—within the bosom of their own country—for their feelings of satisfaction and just complacency. And not like a child, who values a toy by the estimation which is put upon it by other children—or a giddy girl, that prizes the attentions of her admirers in proportion as they rise and fall in the opinion of strangers—he looking forever abroad for some one to pat us on the back and tell us what a decent people we are, and what a clever country we live in. In taking leave of Mr. Stuart's book, we regret not being able to speak as warmly of it in a literary point of view as the liberal and intelligent character of its author would dispose us. It is hardly fair, however, to apply any severe standard of criticism to the style of a work which is confessedly a mere compilation of notes made upon the spot, and afterwards collected for the purpose only of disseminating useful information and not with any aim at literary distinction.

THE PROTESTANT EPISCOPAL PULPIT.—This excellent design of giving a series of original sermons by living preachers in a cheap form, appears to flourish, as it ought, by the publication having in the number before us, reached the 5th number of the 3d volume.

FRANKENSTEIN, OR THE MODERN PROMETHEUS; by MRS. SHELLEY; 2 vols.: Philadelphia, Carey, Lea & Blanchard.—This strange and powerfully written story is one of the most original (some may say absurd) conceptions that ever entered the brain of a writer of fiction. The story is briefly this: Frankenstein, a young and ardent Genoese student, after pursuing the branches of chemistry and anatomy with great zeal and success, conceives the extravagant idea of forming, by the aid of those two sciences, an animated creature in his own form—a human being like himself. For this end, he passes his days in the laboratory and his nights in charnel houses, revolving the various forms of animal matter into its elements, and watching the gradual transition of decaying mortality as it passes through every loathsome shape into its original dust. At last, after consuming months in examining and analyzing all the minutiae of causation as exemplified in the change from life to death and from death to life, his skill in each branch of natural philosophy that relates to physiology enables Frankenstein with incredible labor and fatigue to discover the cause of generation and life. But instead of pausing here, and resting contented with his stupendous discovery, although his health is already broken by extreme devotion to his terrible studies, he at once sets his mechanical contrivance to work to construct a frame, upon which to hang his wonderful discovery—to form a body in which to place the vitality he was able to call into being. The intricacies and complexities of the human system in men of the ordinary mould, are too minute for him to attempt at once a creature of the common scale; and he therefore proceeds to form

lifeless matter into a gigantic shape, and bestow animation upon the monster as it grows to life beneath his hands. The result of his unhallowed labors is a terrific looking creature, whose exaggerated features though imbued with life preserve all the disgusting peculiarities of the separate corpses from which they are formed. His watery eyes roll in their dim white sockets, and his black lips quiver in frightful relief to his ghastly complexion; and Frankenstein shrinks from the monster he had so rashly called into being, as it stands erect in its unearthly proportions glowering upon the daring mortal that had caused its existence. He rushes from his apartment as the gigantic creature, whom it would be vain to contend with, attempts to detain him; but after being long withheld by mingled fear and horror from returning to the chamber where he had left his hideous creation, he can find no vestige by which to trace its departure, and he remains filled with ominous thoughts as to his destiny being involved for the future with that of the demoniacal corpse to which he had given life. And now comes the most horrible part of the story: this fearfully uncouth creature, though gifted with several noble instincts, is repulsed in all his efforts to excite the sympathy of the beings in whose shape he had been formed. He is treated like a monster, and after being hunted down like a wild beast, becomes at last a fiend in earnest, and enters upon a career of outrages upon mankind, which, after destroying all the kindred of Frankenstein, results at last in the death of both.

Such is the outline of this fearful story, the relation of which, if not occasionally almost impious, certainly trenches at times upon what most men regard as hallowed: but as for the ultimate moral of the tale, we confess ourselves unable to discover that it is of the baneful character represented by some of the British critics. Frankenstein might be well taken to represent those rash individuals who, from having successfully explored a few of the most mysterious paths of knowledge, would carry their presumptuous ken through that veil which is at last interposed between the Creator and the creature; while the hideous result of his daring and ingenious labors, in its horrible departure from the physical and moral perfection he aimed at, represents how impossible it is for finite minds, in conceiving a better order of creation than that of which we form a part, to grasp each contingency that must have entered into the mind of an infinite Being, when he called us into existence. We have, however, given so much room already to Frankenstein, that it must now be left for more thoughtful heads to make their own deductions from the story, which, for those who like once in a while to 'sup on horrors,' is delightfully demoniac.

ZOHRAH THE HOSTAGE: 2 vols. Harpers.—They who have dwelt with pleasure upon the entertaining and instructive pages of the ingenious Mr. Morier's *Hajji Baba*, will hardly find their expectations disappointed in the work before us, if a passing examination of its contents privileges us to form an opinion of them. The scenes and characters appear to be in the same excellent keeping as in the previous admirable Eastern story of the author.

FOREIGN INTELLIGENCE.

The foreign news by the Poland from Havre, and by the *Britannia*, since arrived from Liverpool with papers to the 17th ult. is more interesting than usual.

In the East, difficulties appear to multiply; and France and England both seem not a little embarrassed by their voluntary interposition to check the victorious march of the Egyptians.

The Belgian question recedes rather than advances—King William becoming more difficult just in proportion as the powers of the North seem less soli-

citous to keep up friendly appearances with France. Count d'Appony, long the Austrian Ambassador in France, has left Paris, and is, it is said, to be replaced merely by a *Chargé d'Affaires*. Russia it was rumored was to take a similar step; and in both, the substitution of an inferior for a superior diplomatic agent, was looked upon as a quasi rupture with the Revolution of July.

Paris was agitated by the trial, before the Chamber of Deputies, of the Editor of the *Tribune*, for a contempt of that body. All the guards were doubled on the day of the trial, 15th April, and every precaution taken to suppress any disturbances. None occurred; and the *National* and other liberal papers argue, reasonably enough as it seems to us, that all this parade of power and affected apprehension of revolt, were mere manoeuvres of the Police—in order to have an excuse for arbitrary measures. Of the members of the Chamber, 69—among whom were General Lafayette and his son—refused to take part in the proceedings against M. Llonne, the Editor of the *Tribune*, deeming them unconstitutional.

The movement at Frankfort on 3d April would seem to have been connected with some extended scheme of insurrection among the smaller German States—and the departure from their assigned stations of several hundred Polish refugees in France, who marched for the disturbed districts, is supposed to have been connected with the plan. The premature explosion at Frankfort will probably defeat the whole scheme.

In English affairs we do not find any thing new. The Proclamation of Lord Anglesea, of which we heard by the way of Ireland some days ago, suppressing the Irish Volunteers, is given in the papers. It is of the same general tenor as that heretofore published, proclaiming Kilkenny as under the operation of the coercing act.

We find nothing authentic as to rumored change in the English Ministry. Cobbett, who proposed his son—upon the hereditary principle, we presume, which he has so long combatted in others—as a member for Coventry, had suffered a signal and deserved defeat. The ministerial candidate was chosen by a great majority.

From Portugal nothing new

We learn from Madrid, says the *Journal des Debats*, that the decrees issued to convoke the Cortes in order to swear allegiance to the daughter of the King as heiress of the throne, on the 20th of next June, has produced an excellent effect among the true friends of the Queen and the Monarchy. This resolution, and the news that government has received from all points, announce the most perfect tranquility in the provinces.

LATER FROM EUROPE.—The *Napoleon* packet ship from Liverpool brings us papers to the 24th ultimo. The position of public affairs remains much as described above. From Constantinople, the accounts are contradictory as to the designs of the Porte. On the one hand, it is said the Sultan has agreed to treat with his rebellious and victorious vassal, upon the basis laid down by the conqueror; on the other, it is alleged, that urgent expresses had been sent off to hurry the march of a Russian army to defend Constantinople from Ibrahim. If the latter be the true version, England and France, neither of which powers has in the Levant or in the Dardanelles a force sufficient to give efficacy to their protests against the armed intervention of Russia,—will be made sensible of the mortifying disadvantage of relying on protocols against bayonets and hordes of Cossacks on the spot.

The free city of Frankfort, as was to be expected, has been *tranquillized*, after its popular tumults, by an Austrian detachment marching into the city to keep the peace.

M. Llonne, the Editor of the *Tribune*, had been

sentenced to three years' imprisonment, and a fine of 10,000 francs—(\$2,000.) The sentence was carried into effect without any tumult.

The Belgian question is anew discussing.

Another coercing Proclamation, No. 3. by the Lord Lieutenant of Ireland, suppressing the National Trade's Political Union, appears in the London papers.

The Budget for the year ending April, 1834, was brought forward in the British House of Commons on the 19th. The receipts of the year are estimated at 46,494,138*l.*, and the expenditures at 44,922,219*l.* Of the expenditure, 30,300,000*l.* is for interest, &c., on the national debt. The Chancellor of the Exchequer recommends a reduction in the salaries of various officers, and a reduction of duties on the following articles:

1. Tiles—whole duty,.....	£37,000
2. Marine insurance—estimated diminution,.....	100,000
3. Advertisements—ditto,.....	75,000
4. Assessed taxes—reduction of house and window duty on shops,.....	244,000
5. Cotton—reduction of additional duty imposed in 1831,.....	300,000
6. Soap—half present duty,.....	593,000
	£1,349,000

The present duty on advertisements is 3*s.* 6*d.*, which it is proposed to reduce to 2*s.* 6*d.* for the first insertion, 1*s.* 6*d.* for the second, and 1*s.* for the third. The duty on marine insurance it is proposed to reduce about one half.

It is stated in a French paper, that the French Navy Department intend to substitute, in the Government ships, *iron wire* ropes for the usual cordage in the rigging; and that this change will effect an annual saving to the amount of 300 or 400,000 francs.

EMANCIPATION OF SLAVES IN THE WEST INDIES.—Mr. Stanley, the newly appointed Secretary for the Colonies, in an address to his constituents on his reelection to the House of Commons from the Northern Division of Lancashire, after taking office, held the following language—which from his official station, will be looked to with much interest:—

But there was one question connected with the colonial system, one of such paramount importance—that he could not avoid reverting to it. If he felt upon a late occasion that, as a Minister of the Crown, it was impossible he could enter distinctly into the views of Government upon the question of slavery, that impossibility was now stronger and more urgent when he was himself the Minister upon whom the task would devolve of proposing to Parliament, in a very short space of time, the measures which his Majesty's Government had in contemplation on this most critical and all-important subject. There was no question which involved so many interests of such magnitude—no question in which those whose interests were affected were in a state of such great fear and difficulty. And on the other hand there was no question in which the interests of humanity, the enthusiasm of religious feeling, and all the generous and manly feelings of Englishmen were more earnestly and anxiously embarked for the purpose of bringing it to a speedy and satisfactory conclusion. (Loud cheers.) Between these fears on the one hand, and these trembling interests on the other—these alarms on the score of property, and these fears of men who have been long in a state of difficulty, and who, therefore, dread any thing that may add to the pressure under which they suffer, and who have such an alarm at any attempt to arrange this great question; between all these numerous difficulties it will be admitted that it was hard for Government to steer a satisfactory course. But he thought that notwithstanding these difficulties, by applying themselves earnestly to the consideration of this question, with an anxious desire to do justice, and to promote the interests of humanity, he would soon be enabled to propose a measure to Parliament which would be, in the words of his Noble Friend, the Chancellor of the Exchequer, safe and satisfactory. (Loud and continued cheering.) He said safe and satisfactory; and he would add, that in his opinion no measure could be safe and satisfactory which was not founded upon principles of equity and justice—which did not carry with it something of a decisive and positive character, which would be acceptable and lasting, and which would enable him to say that it would not be a matter of probability, but of certainty to the people of England, that in a short time, sooner or

later, they would see a termination given to the disgrace of negro slavery. (Loud cheers.) In so speaking, he only expressed what had been the object so long and so fondly cherished by the people of these countries—what Parliament had been pledged to accomplish by resolutions for many years; although he was free to say that he did not think these resolutions had been carried into effect so rapidly, and, he would add also, so safely as they might have been, had determined measures been earlier resolved upon and adopted. While the Government, therefore, was bound to look with vigilant care to the interests of parties deeply concerned, they were also called upon to be most anxious in their desire to accomplish the earnest wishes and feelings of the people of this country—feelings which were not more reconcilable to the interests of England than to the dictates of humanity. (Great cheering.)

LONDON, April 18.—*American Stocks*.—Our advices are to the 18th, at which period United States Bank Stock had risen to £23 5s. which is an advance of five shillings from the previous date by the Britannia. The rate with Exchange at 9 per cent. is about 112½.

Ohio 5 per Cent.	1850	114
— 6 per Cent.	1850	114
Louisiana State Loan	1844	
“ “ “ “ “ “ “ “	1847	105 105½
“ “ “ “ “ “ “ “	1850	
“ “ “ “ “ “ “ “	1852	
Louisiana Barings	1833	98½
“ “ “ “ “ “ “ “	1838	
“ “ “ “ “ “ “ “	1843	
Philad. City 5 per Cent.	1846	
Mississippi 6 per Cent.	1841	
“ “ “ “ “ “ “ “	1846	108
“ “ “ “ “ “ “ “	1851	
“ “ “ “ “ “ “ “	1850	
U. S. Bank Shares	£23 s £23 5s.	

Dividends from 1st January.

VERY LATE FROM BERMUDA.—By the schooner Brilliant, Capt. Bronson, we have received Bermuda papers to the 21st inst, only seven days from that Island.

They state that reports had reached there that an insurrection had broken out amongst the Negroes in Demarara.

A Portuguese Slaver with 230 slaves had been cast away at Jamaica. Slaves all safe ashore under the protection of government.

A letter from the interior of Jamaica, dated 19 April, says the weather had been dreadful, the crop will not be half an average one. Negro grounds burnt up—not a spear of grass.

[From the Salem Gazette of Tuesday.]

CAPTURE OF MOCHA.—We have been favored with the following extract of a letter from the captain of the ship Restitution, of this port, to John Forrester, Esq. his owner:

“MOCHA, JAN. 20, 1833.—A Turkish army, under Belmas, after taking Judda and the other ports on the Red Sea, attacked Mocha on the 19th November, and after a bombardment of 15 days the place surrendered. The Bashaw has treated me very kindly, ever since he has been here, and tried to forward my business as much as possible. He is about raising the duty on all foreign ships to seven per cent. the same as the Arabs pay, which will be of much consequence to the American trade. The whole senconat is in possession of the Bashaw Belmas, from Judda to Adin; but the country is in a very unsettled state, and it is reported that the king of Sannah is raising a large force to endeavor to retake his possessions. Coffee is scarce and high.”

SUMMARY.

TREATY WITH RUSSIA.—The Globe of Saturday contains the treaty at length, concluded in December last with Russia. The treaty contains thirteen original articles, and one separate one. From the Baltimore American we take the following synopsis of their provisions:

The first article establishes a reciprocal liberty of commerce, navigation and trade—extending to the inhabitants of each State sojourning or trading in the territories of the other, the same security and protection enjoyed by natives, on condition of obedience to the laws.

The second article places the vessels of both countries in the same port on an equality as to tonnage duties. In regard to light-house duties, pilotage, custom house fees, port charges, and all other fees and charges of every description and for every purpose, they are to be placed on the footing of the most favored nations, with whom there are not specific treaties on the subject now in force establishing a complete reciprocity.

The third article abolishes discriminating duties on importations, and stipulates that no greater charge

of any kind whatsoever shall be levied on merchandise, &c. imported in the vessels of one country than on the other. By the next article it is explained that these stipulations in both cases, apply as well to arrivals in either country, from ports foreign to both, as to direct voyages.

The same reciprocal stipulations for abolishing discriminating duties are by the fifth article extended to exports from both countries.

The sixth and seventh articles provide that no higher duties shall be paid on importations or exportations of the produce or manufactures of either country to or from the other, than are paid on like articles from or to any other foreign country. None of these stipulations relate to coastwise navigation—that is expressly excepted and reserved to both nations.

By the eighth and 9th articles the liberty is reserved to each country to appoint consuls, vice consuls, agents, &c. with the privileges of the same officers of the most favored nations,—they being liable, if engaged in commerce, to the laws and usages established for native merchants. They may act, too, without the interference of the local authorities, except when the public peace is endangered, or assistance is required to carry their decision into effect. The parties to controversies before them are not thereby restrained in their judicial remedies at home, for acts done under this authority. Consuls, &c. may require the aid of the local authorities for the arrest, &c. of deserters. Demand, in such case, must be accompanied by written evidence of the claim upon the deserter, and the exhibition of proper official documents. Deserters may be placed by the consuls, &c. in the public prisons, at the cost of those claiming them, until delivered to the claimant, or sent home by another vessel. Four months without being sent home, is the limitation of this confinement, after which the prisoner, unless detained for crimes, shall be unconditionally discharged, and not subject to arrest again for the same cause.

The tenth article grants to alien residents in both countries the right of disposing of personal estate by will—their alien representatives to inherit and take possession personally or by deputy, without any other charges, duties or obstructions than are imposed on native heirs—the same laws of intestacy and administration to apply in the absence of the alien heir. The *lex loci* and domestic courts are to decide the rule of descent and apportionment. In cases of real estate, an alien heir shall be allowed a reasonable time to sell and withdraw the proceeds, without paying any extra charges or dues. It is provided that this article does not derogate from the existing Russian laws against emigration.

By the eleventh article it is agreed, that if either party shall, hereafter, grant to any other nation, any particular favor in navigation or commerce, it shall, immediately, become common to the other party, freely, where it is freely granted to such other nation, or on yielding the same compensation, when the grant is conditional.

The closing articles extend the force of the treaty to Poland, and fix its duration to the year 1839, provided one year's notice of intention to abolish shall have been given at that date, or until one year after such previous notice shall have been given thereafter.

The separate article for the purpose of removing all ambiguity and subjects of discussion from their commercial relations, explains that the existing civil regulations between Russia and Sweden, Russia and Prussia, the Grand Duchy of Finland and Poland,—which are now in force, but which “are in no manner connected with the existing regulations for foreign commerce in general,”—are not to be affected by this treaty.

THE BALLOON ASCENSION of Mr. Durant, on Wednesday last, was very striking and successful, tho' the enjoyment of the sight was rapid indeed. The balloon, in a few seconds after it sprang from the earth, was hidden in the clouds, which were low and dense, and nothing more was seen of the aerial traveller. The wind being from the southward and eastward, it was perceived that the balloon would be necessarily driven over into Jersey, or up the North River; and hence less anxiety was felt for the unseen vessel and its daring navigator, than if the wind had been seaward.

We have just had a visit from Mr. Durant, who reports that he landed safely and without accident in an open field, in the manor of Fordham, in Westchester county, on the farm of W. R. Morris, in about an hour and a quarter from the time of his departure from Castle Garden.

His rise, he says, was very rapid, but he soon

passed through the stratum of clouds in which the balloon was so immediately lost to the spectators below, and then found himself in a clear region of sunshine, with a boundless ocean of fog beneath him.—The balloon continued to rise with great rapidity, till, as Mr. D. estimates, he had attained the height of about 16 or 17,000 feet, (three miles). His whole attention, however, being required to the means requisite to arrest the upward progress of his rapid bark, he could not ascertain by his barometer the precise height. When in the clear region, a northerly breeze wafted him towards the ocean, and just as he descended and touched the upper surface of the clouds again, he distinctly heard the roaring of the surf.—After entering the clouds a southeaster drove him back, and he continued gradually lowering himself to the earth, till in about 35 minutes from the time when he heard the ocean roar, he landed—nothing loath we may suppose—on terra firma, in Westchester, about thirty miles, we may presume, in a straight line, from the sea. He was assisted in securing his balloon by two or three black men at work in the fields—and returned to town, himself and his ship of the air, unharmed.

THE GUARDIAN INSURANCE COMPANY.—We understand (says the Gazette) that nearly three times the amount of Stock in this new Company was subscribed for on Monday. The charter requires that the commissioners shall make an apportionment of the Stock among the subscribers.

We understand, (says the Commercial) that the Commissioners for supplying our city with water, have appointed Canvass White, Esq. and Professor D. B. Douglass, Professors of Civil Engineering in the University of New York, to make the requisite surveys and examinations.

We find the following statement in the Brooklyn (L. I.) Star:

COMMODORE CHAUNCEY.—We understand that Commodore Chauncey, who has had for some years the command of the Navy Yard attached to this village, has been appointed a Navy Commissioner, and that Commodore Ridgely will succeed him in command of the Yard.

It is but justice to Commodore Chauncey to say, that his uniform courtesy as a citizen of this village, and his zeal and activity in the duties of his station have given him a high place in the estimation of the people of Brooklyn. We trust that his successor will be able to supply his place in all the qualifications of an officer and gentleman.

BENJAMIN GORHAM was nominated on Monday a candidate for Congress from Boston. He will, we hope, no longer decline—for there have been already two unsuccessful attempts at an election. His name will at once bring out sufficient strength to elect him triumphantly.

In a Philadelphia paper, we find the following on *dits*.

“John Randolph's property, left by him to his heirs, is immense, probably amounting nearly to a million of dollars, in tobacco plantations on the Roanoke, negroes, race horses, dogs, bank stock, &c. It is all left to his half sister and two half brothers, whose names are Tucker. His plantation on the Roanoke is one of the finest in that country.

“John Randolph was born on the 2d June, 1773—he was, therefore, at the time of his death, 59 years, 11 months and 21 days old. His coffin bore the date of his birth day.”

CHOLERA AT NEW ORLEANS.—The Price Current of the 11th May, instant, says—

“Much has been said and written on the subject of Cholera, &c., since our last report—as far as our information extends, we have learned nothing new on the subject; occasionally persons are attacked, and some die with what is called Cholera, but there does not appear to be any new causes of alarm, and generally, the attention of the community is not at all occupied with the subject.”

Bishop Mc Ilvaine, before entering upon his duties in the diocese of Ohio, has made a tour into the eastern states, with a view of collecting funds to aid Kenyon College, of which institution he is ex-officio president. He has been eminently successful; all denominations of christians appear to encourage and reward his exertions, and on one occasion he received \$200 from two Jews.—[U. S. Gazette.]

BUFFALO, MAY 22.—A detachment of recruits, about 90 in number, under the command of Captain Barnum, arrived here at sunset last evening from Fort Niagara, having marched from sunrise 26 miles to Tonawanta, where they embarked on board of canal boats. They are destined for the posts of Fort Howard, Fort Dearborn, and Fort Brady, and left this morning in the Sheldon Thompson.

The indictment against the Mayor and Aldermen of Boston, for having made a false return of votes at a recent election, was tried on Monday, and a verdict of *not guilty* was promptly rendered by the Jury.

THE NEW YORKER.—Mr. William T. Porter, the Editor of this new weekly, has, for reasons which must be satisfactory to those interested in it on his account, retired from the editorial conduct of that paper.

[From the Boston Centinel of Friday.]

PUBLIC SALE OF WOOL AT BOSTON.—The sale of Wool which took place yesterday, at Quincy Hall, brought together a very large company, consisting of manufacturers from this and the adjoining States, and most of the principal dealers, of other cities. The Catalogue contained over 100,000 lbs. of fleece Wool of very desirable qualities; 70,000 lbs. Nos. 1 and 2, pulled; 15,000 lbs. imported Saxony; 40,000 lbs. Spanish sheep's and lamb's; 500 bales Buenos Ayres and Montevideo; 200 bales washed and unwashed Smyrna; besides several smaller parcels of coarse Foreign Wool. Notwithstanding, the sale was fully attended, and the Wool advertised, was of the most desirable kinds; there was but little spirit manifested, and only a very small portion of the Wool was disposed of, prices considerably below the expectations of owners. We notice the following as the principal sales which were made, viz: 12,000 lbs. fleeces, from 1.2 to 3.4 blood Merino, 43 a 45ct; 3,000 lbs 3.4, to full blood Merinos 53ct; 10,000 lbs selected full blood Merino and Saxony fleeces 62 1.2 ct; 3,400 lbs very good No. 2, pulled Lamb's at 41ct; 18,000 lbs No. 1, pulled, at 44 a 48ct; 2,500 lbs imported Saxony 80ct; 5,600 lbs do do 106 1.2ct; 4,500 do do 130ct; 15 bales Spanish Sheep's R. at 85 a 87ct; 5 bales do do R. R. inferior, 77 1.2ct; 5 bales Spanish Lamb's at 77ct; 20 do do at 80ct; 1 bale Saxony Lamb's 93ct; 10 bales unwashed Smyrna 18ct; 10 do do, very dirty 12ct; 10 bales washed Barbary Wool 26ct; 300 bales fair Buenos Ayres 9 a 11 1.2ct; 8 do do, very inferior, at 5 1.2ct; —10 bales Constantinople lined at 16ct; 27 bales Mohair 44 a 48ct. The low prices, in general, which were obtained, may be attributed mainly to the fact, that shearing is near at hand, at which it is expected there will be an unusually large clip.

Appointment by the President.

William Mills, of Maryland, to be Consular Commercial Agent of the United States at Aux Cayes, St. Domingo, in the place of Joshua Webb, resigned.

Great Pedestrian feat.—Last week, Lieut. Johnson, of the 66th Regt, British Army, undertook for a wager of £100, to walk from Fort George, U. C. to the Eagle Tavern, in this City, and return, a total distance of seventy-two miles, in *eighteen* hours; which feat was performed by him in *seventeen* hours, with apparent ease, including crossing the Niagara River from Waterloo to Black Rock. The day was very hot and sultry, and the roads were much broken up by the previous heavy rains. —[Buffalo Patriot of 21st.]

Emigrants.—The Rev. Mr. Plummer, from Virginia, in addressing the American Home Missionary Society at its anniversary last week, remarked incidentally that during the last few years twenty thousand Swiss and Belgian emigrants had settled upon lands in Virginia and Maryland, which had been supposed to be worn and almost worthless, but which, under their cultivation had been made as productive as the good lands of the West. In consequence of this, lands had risen in value and industry had received a new impulse.

CHEROKEE, (Geo.) MAY 4.—A Battle.—On Sunday, 27th April last, a battle was fought near Scudder's, in Forsyth county, between a party of Indians and a party of Whites, consisting of 30 on each side. Their weapons of warfare consisted of fists, sticks and stones. There were no lives lost, but many a black eye and broken bone was the result of the conflict. Mr. Luke Robinson, from whom we obtained this intelligence, was present at the scene, and described it as being very terrific. We regret that Mr. Robinson was in such a great hurry, that we had not sufficient time to inquire into the particulars. The victory was claimed by the whites—and we presume the quarrel originated in a dispute about the gold mines of that place. —[C. Intel.]

Shipwreck.—We are indebted to Mr. Alden Spooner of Brooklyn for the following intelligence, which he received from the stage driver. The British ship James Henry Cuming from Liverpool, came ashore at Patchogue, south side of Long Island, on Tuesday at 3 P. M. in a fog. She has 149 passengers, and a

cargo of slate and salt. A boat coming ashore was upset and two ladies drowned; the remainder of the crew and passengers got safe ashore. —[D. Adv.]

Another Suicide.—We learn from the papers of Westmoreland County, that on the morning of the 13th, Gen. John H. Wise, in a fit of insanity, terminated his life by strangling himself with the aid of his suspenders, in a room in the jail of that county. He had been in a deranged state of mind for some time previous, from an unknown cause, and was confined in the jail, at his own particular request—having reflection, by times, sufficient to deprecate the commission, if at liberty, at some unguarded moment, of a rash act. —[Phila. Gaz.]

The death of one of the Swans, in the Fair Mount fore-bay, we learn, was caused by the bird's swallowing a darning needle. The body has been preserved, but it is more than probable that the male will pine itself to death, for the loss of its companion. It is very likely it swallowed the needle encased in an apple core, thrown to it by some heartless villain. —[Philadelphia paper.]

The United States Gazette furnishes the following characteristic anecdote of a Sailor, who visited the Blind Fair, lately held in Boston:

The accomplished Mrs. O. was attracting all eyes to her table, when a sailor bore down towards her, with strong symptoms of becoming a purchaser of some of the rich articles before her. He drew from his pocket a ten dollar note, and after looking steadfastly upon the lady, he laid the money on the table, and was about to withdraw—"Will you not take some article for your money," said Mrs. O. to him. The honest fellow turned again towards her, and looked—then with an expressive hitch, he sheered off, saying "no, I've had my money's worth."

Encounter with a Whale.—The Middletown Gazette furnishes the following case of remarkable presence of mind of the master of a whale ship, when in a situation of the most imminent peril:—

Captain Chester, of the whaling ship Ann Maria, of this place, on her late voyage round the East Cape, met with the following adventure. One of his boats having fastened to a whale, as is customary, a second boat, in which was Captain Chester, approached and drove a second dart into the monster. In his rage and agony, the whale rushed with great rapidity through the water, when the rope attached to the harpoon, caught Captain C. round his leg, above the ankle, and drew him overboard. At this critical moment he seized a knife, sticking in the gunwhale of the boat, and thus armed, was drawn under water. The rope soon made a turn round his body. In this situation, moving rapidly down, he first cut that part of the rope around his body, then cut the rope fastened to his leg. Being thus relieved, he rose to the top of the water and raised his hand, grasping the knife. Some distance from the boat he was discovered by the crew, who hastened to his rescue, and took him on board, almost exhausted. He was drawn down about thirty fathoms. The Captain is now well and preparing for another voyage, nothing daunted by his adventure.

[From the Albany Daily Advertiser.]

Mrs. BRADSTREET'S SUITS.—At the United States Circuit Court for the Northern District of New York, Judge Conkling presiding, now in session in this city, came on one of the suits of Mrs. Bradstreet for the recovery of lands in Utica and vicinity. The first and only suit yet tried, was against — Broadhead.

The case commenced on Wednesday the 15th. Counsel for tenant, Samuel Beardsley and Abraham Van Vechten.

For the defendant, J. V. N. Yates, D. D. Barnard, and David B. Ogden.

After the counsel had finished their arguments, the cause was committed to the jury at about 3 o'clock on Tuesday afternoon, the 21st.

At the opening of the court at nine o'clock on Wednesday (yesterday) morning, the jury came in, and Charles R. Webster, as spokesman, said, the jury could not agree, and there was not the least probability they could, and asked that they should be discharged.

Whereupon Judge Conkling observed that it was in the discretion of the court to discharge the jury, yet that under the circumstances of this case, it was not proper to dismiss them unless the parties would consent.

The jury then again retired, and after an hour, returned and repeated that they could not agree.

The jury were then discharged.

We understand the jury were ten for Mrs. Bradstreet and six against.

VISITERS TO WEST POINT.—The Globe of yesterday furnishes the following enlarged list of gentlemen invited to attend the examination of the Cadets of the United States Military Academy, in June, 1833:

MASSACHUSETTS.....	James Russell, Esq.
	Rev. J. Leland.
RHODE ISLAND.....	Gov. James Fenner.
NEW YORK.....	Washington Irving, Esq.
	Gen. Erastus Root,
	Perley Keys, Esq.
	Gen. Morgan Lewis,
	Gov. J. C. Yates,
	Gen. Stephen Van Rensselaer.
NEW JERSEY.....	Gov. M. Dickerson,
	G. D. Wall, Esq.
PENNSYLVANIA.....	Col. E. Banks,
	Hon. J. R. Burden,
	Hon. T. H. Crawford.
DELAWARE.....	James Rogers, Esq.
	Geo. Read, Esq.
MARYLAND.....	Upton S. Heath, Esq.
	J. S. Skinner, Esq.
VIRGINIA.....	Hon. W. S. Archer,
	Major R. Pollard,
	Col. F. B. Poval.
SOUTH CAROLINA.....	Hon. William Drayton,
	Hon. J. R. Polmett.
GEORGIA.....	Hon. J. Forsyth.
TENNESSEE.....	Rev. Dr. Cha's Coffin.
KENTUCKY.....	J. Haskin, Esq.
	Dr. Jno. A. Tomlinson,
	Warden Pope, Esq.
OHIO.....	Thomas R. Ross, Esq.
MICHIGAN.....	John Norvell.
U. S. ARMY.....	Gen. J. R. Fenwick,
	Col. James Bankhead.

[From the Boston Centinel of 25th May.]

MR. BUCKINGHAM.—We regret to learn, that Mr. Edwin Buckingham, junior Editor of the Courier, died on the 18th inst. on board of the brig Mermaid, on her passage from Smyrna to this port, aged 24.—Mr. Buckingham was a young man of superior talents and intelligence, a ready writer, an accurate reporter, and for several years past, he has been advantageously known in this community, as co-Editor with his father, in conducting the Courier. His constitution has been feeble for about two years past, and, with a view of restoring his health, he embarked last October for Smyrna. On his arrival out, however, it was found that no benefit had been derived by the voyage, or change of scene, and he soon determined to embark in the Mermaid, towards home. On the approach of the vessel, the half-mast flag was observed, the melancholy signal of having lost an officer or passenger, and it proved to be in consequence of the death of Mr. Buckingham. His loss will be deeply lamented, not only in the immediate circle of his family, but by a large circle of personal friends and acquaintances, by whom he was known and appreciated. His funeral services were performed on the ocean, and his remains were committed to the fathomless deep.

NEW LONDON, MAY 22.—Shipwreck.—The ship Ruth and Mary, B. Chester, master, belonging to Williams & Barnes, which left this port on Saturday last on a whaling voyage, at 6 o'clock in the evening, struck on a rock at the south-west point of Block Island, where she still remains. The sails, rigging, anchors, and a part of the provisions and other outfits, will be saved; but the ship will be wholly lost.

Musk in Cholera.—"Among others matters resorted to by the faculty to stay the progress of this terrible disease, one has been published of so singular a character, that we do not hesitate to extract the statement into our columns.—It is contained in a letter from Mr. Richard Laming, of No. 48 Finabury Square, a district in which the ravages of the plague have been very great. Mr. Laming says:—

"I have lately employed musk in several cases of Cholera with a success so uniform and decisive, as to make its introduction desirable, without loss of time, to the notice of the whole profession, &c.

The salutary influence of the first dose of musk will be found to become manifest by greatly mitigating, in a very few minutes, and in many cases, by effectually removing the cramps, the purging and the vomiting. My plan has been to give at once fifteen grains, rubbed into a draught with a lump of sugar and a wine glass full of cold water, and I am justified in reporting that this first step, if taken promptly, will scarcely ever fail to arrest the progress of the disease, and leave the patient to easy and ordinary convalescence, &c. So evident is the action of musk in cholera, that the practitioner will experience no difficulty in determining whether he need repeat its exhibition, or whether, having subdued the immediate cause of the disease by the first dose, he should direct his attention to the removal of its consequences by the ordinary means."

[New Monthly Magazine for 1833.]

Mrs. Royall says, "Waiting to get things fixed before getting married is like waiting till we are

ready to die. 'Tis a chance if we ever get ready in either case."

Widening of William Street.—After long and patient hearing, investigation and rehearing, the Commissioners on the widening of William street from Pine to Wall have brought their labor to a satisfactory close. A slice is to be cut from the Bank Coffee House and the Bank of New York, five feet wide on Pine street and eight and a half feet on Wall. For this those two estates receive as follows:

Bank of New York, . . . \$35,139 30
Bank Coffee House, . . . 6,836 10

\$41,975 40

This sum is assessed upon the estates fronting on William street, from Ston to John, including the corners on the north side of John; those in Wall from the Phoenix Bank on one side, and Merchants' Bank on the other, to Hanover street. On the estates in Pine, from Nassau to Pearl, and upon the ten or twelve lots on each side of Cedar above and below William.—[Journal of Commerce.]

PHILADELPHIA, MAY 25.—The Washington Globe of Wednesday informs us, that on Tuesday, the 21st, the Chevalier Ankerloo, Chargé d'Affaires of his Majesty the King of Sweden and Norway, took leave of the President, and Mr. McLane, Acting Secretary of State, preparatory to his immediate return to Sweden, on a temporary leave of absence from his Sovereign; and on the same occasion, he presented the Chevalier Lorch, Consul General of Sweden and Norway, as Chargé d'Affaires ad interim, in his place.

Robert B. Randolph, the assailant of the President, has, it is stated in the Philadelphia papers, sailed from that port for Liverpool.

The Richmond Enquirer states, without expressing any doubt, though not without just indignation at, a rumor that this individual had dined with a volunteer cavalry corps of Richmond, and been specially toasted!

NASHVILLE, MAY 13.—Union Bank of the State of Tennessee.—We learn with pleasure, from an authentic source, that Gen. Gibbs, President of the Union Bank, has disposed of the State Bonds to that institution at 5 per cent. advance, reserving the interest for the first six months, making a net profit to the bank of \$37,500. He has also made an arrangement for an interest account with the Bank of Maryland, which will be highly favorable to the Union Bank, and will greatly facilitate the transaction of its business. These arrangements will place the institution in funds to a large amount, and will doubtless enable it to extend effectual and extensive relief to the community.—[Banner.]

THE GREAT FREE STATE OF THE WEST.
[From the Scioto Gazette of May 15.]

The State of Ohio has, it appears, contracted a debt for canal purposes, nearly to the amount of five millions of dollars. However, the credit of the State seems well able to maintain itself under the burthen of this debt. Ohio canal stock is twenty-nine per cent. above par, and it is stated by good authority, "that the commissioners of the canal fund have very recently disposed of 100,000 dollars of additional 6 per cent. stock, at the rate of 124 dollars cash for 100 dollars; making the whole amount received 124,000 dollars. And, as the gross amount of tolls received during the last year, when a good portion of the principal canal was not completed, exceeded 111,000 dollars—it may be predicted with safety, not only, that her credit will increase, but that, without requiring much longer the aid of taxes, the tolls will of themselves, besides paying the entire interest of the debt, begin the foundation of a sinking fund. Were it not for the interest to be paid on the canal debt, which in all probability will be more than paid by the tolls, the taxes would be uncommonly light. The government of the State is as cheap a one, in all its parts, as could be devised.—Both houses of assembly include but 108 members. The highest salary in the State is only 1200 dollars, and there are very few even as much.

Since 1825 the taxes have been high, compared with what they were before that time; chiefly in consequence of the canal debt. They are now about nine mills on the dollar; but there is little doubt but that they will soon be reduced.

The following is a statement from a late message of the Governor. It shows how much the taxes will

be diminished when the canals shall be able to support themselves.

"The total amount of interest due on the canal debt, for the year 1832, is about \$285,000

The nett amount received from tolls the same year, \$104,302

The proceeds of public lands granted by Congress for canal purposes, for the same year, 58,103

Which, together, make \$162,405

Leaving to be defrayed by taxes, \$122,595

This sum, taking the valuation of 1831 for the standard, amounts to nearly two mills upon the dollar on the taxable property of the State; which is about two ninths of the entire public burthen, soon to be removed.

[From the Ohio Atlas.]

What a change has taken place in the business on the Lake within a few years! Then, Walk-in-the-Water walked alone on the dancing waves of Erie. Now, see the list of beautiful boats, which find constant employment between Buffalo and Detroit.

Steamboat Enterprise,	Capt. Fox.
" Sheldon Thompson,	" Patterson.
" William Penn,	" Wright.
" Superior,	" Pease,
" Ohio,	" Titus.
" Niagara,	" Standard.
" Henry Clay,	" Norton.
" William Peacock,	" Wilkins.
" Pennsylvania,	" Fleeharty.
" Uncle Sam,	" Stiles.
" New York,	" Miles.

The Enterprise, Peacock, Niagara, and Wm. Penn, constitute the evening line between Cleveland and Buffalo, leaving each port every evening at 9 o'clock. The other boats form the morning line between Buffalo and Detroit, stopping at Erie and the ports west. Cleveland will have two boats daily to and from Buffalo, and one to and from Detroit. Besides these, the George Washington, Capt. Walker, will be out in June. The Washington measures over 600 tons, is about 200 feet in length, and will be propelled by two low pressure engines of 80 horse power each.—A new boat is on the stocks at Black Rock, not yet christened. The Michigan is a new boat expected out in June, from Detroit. This is a large boat, and is intended to be second to none on the Lake for speed and convenience.

The Philadelphia Commercial Herald, referring to the brilliant Aurora Borealis recently seen in that city, says—

We remember, in 1827, that precisely such a stream of light appeared. We were on the Fox River of Lake Michigan, and were ascending that river with a war party, composed of United States troops and Indians. The Indians numbered about one hundred. Immediately on the appearance of this light, (not the Aurora Borealis, for they were accustomed to that, but an emanation from it, such as we saw on Friday night last,) the Indians made a halt. They interpreted it into a sign of anger in the Great Spirit; and as indicating his disapprobation of the business they were going on. It was in vain that we represented our views of this light.

They answered "It lies across our path, and we cannot pass over it, it is above," meaning it was placed there by the Great Spirit. Had this stream of light happened to be in the direction of our march, it would have been interpreted differently.

Fortunately one of the Indians espied a rattlesnake. The appearance of a rattlesnake, in an emergency of the sort, is considered an omen for good. They believed the snake to have been sent by their friends from the land of souls. After much pow-wowing over the reptile, and sprinkling a present of tobacco over his head, which was designed as a token of friendship, the Indian who had discovered him, and whose property he therefore was, ran his finger and thumb up his back, and catching him fast by the neck, raised him from the ground, gave him a crack, as if he held a whip in his hand—thus dislocating the vertebrae of the back. Then with a stick, the work of his destruction was completed. The Indian was careful to send back, by the snake, certain messages to his friends in the land of souls, and many thanks for their having sent him to them in their emergency.

The snake was soon skinned, and cut up into inch pieces—each warrior taking a bit for his medicine bag, whilst the snake's skin was made to ornament the person of his discoverer. Its head was tied to a lock of the Indian's hair, the rattles trailing upon the

ground, a foot at least behind his feet who wore this badge of hope and of triumph.

The rattlesnake had served only to diminish, not clear away their doubts. The Indians moved ahead with reluctance. It was of the utmost importance that all this superstition should be got rid of, somehow—as we knew not the moment when we should have use in fight for the services of all concerned.

It so happened that shortly after another Indian espied a bear in a trap. This broke the spell of their fears. Such luck was immediately resolved into a most encouraging circumstance, and as plainly demonstrating that their friends, from the land of souls, were in favor of their going ahead, and of the cause they had engaged in. The bear was talked to. He was told, over and over again, how grateful it was to meet him—what troubles they were in—how kind their friends were to send him. Then getting his rifle ready, the Indian having first discovered him, said to the bear, "Bruen—it's not the Indian but the white man. The Indian loves Bruen. The white man makes him die. When you go back, Bruen, tell all this, and don't forget to thank our friends for sending you." Then taking aim, he fired. The bear fell with a growl—and was soon skinned, cut up, boiled, and eaten.

We then went on without further difficulty, until the object of our march was accomplished.

[From the Boston Mercantile Advertiser.]

The Clarke House.—This ancient mansion which is now being razed to the ground, and the panellings of which were sold at auction this morning, is the same sometimes called the Frankland House, (Sir Henry F. having since been its owner) and is situate in Garden Court street, North square, next door to the large old building that was the residence of Gov. Hutchinson, and which has a curious old balcony over the front door. The Clarke House (minutely described by Cooper in his novel of Lionel Lincoln) was built more than a century ago, by Mr. William Clarke, a merchant of great wealth, who is interred on Copp's Hill.

The following inscription, says the Atlas, is still visible on his tombstone.

Here lies the Mortal Part
of
WILLIAM CLARK, ESQ.

An Eminent Merchant of this Town and An Honorable Counsellor for the Province Who Distinguished Himself, as A faithful and generous Trader;

Loyal to his Prince Yet always Zealous for the Freedom of his Country; A Despiser of Sorry Persons and little Actions; An Enemy to Priestcraft and Enthusiasm Ready to relieve and help the Wretched. A Lover of good Men of Various Denominations And a Reverent Worshiper of the DEITY.

In the library of the old house is a closet lined with wood, and at the back of one of the shelves is a large bird, very well painted. The mantel-piece in this room is beautifully carved, in imitation of flowers and fruit, and is in perfect preservation. Over the mantel-piece is a curious old picture, representing a boy and girl of a century ago. They are said to be two children named Ellis, who were on a visit to the Clarke family. The girl is seated on a bed or couch, and has a loose white night gown, ruffled round the neck. The boy is approaching to present her with a red apple, and is dressed in a blue coat trimmed with gold lace, and a red silk scarf thrown over his shoulders; his legs are covered with long silk stockings, and a sort of buskins laced up with gold cord; at his wrists are deep cuffs of white lace. The children evidently belonged to a family of the upper class, though it is said that a descendant of one of them has been a tenant of the alma-house within the two years past.

In the principal room of the Clarke House (the parlor on the right hand of the front door), the walls are wainscotted all over, and on every pannel is a painting in oil representing different landscapes, handsomely bordered, and decorated at the top with armorial bearings.

The floor of this room is tessellated, being composed, it is said, of fifty-two different sorts of wood, cut into small pieces: and arranged in various but regular figures, so as to resemble handsome patch-work. In the centre of the floor are the arms of the Clarke family, represented in the same manner by different pieces of wood. This was probably the most expensively finished room in Boston.

The panellings went this morning for \$49. 57 in all. The picture of the old house itself sold for \$3. 25; a landscape for the same; view of the Tuilleries (a beautiful thing) for \$3. 50; seat of Sir Henry Frankland for \$5. 75; landscape on the parlor-door for \$6. 50. The figures are remarkably perfect, and the colors very lively, though not varnished over, we understand, for 20 years past.

